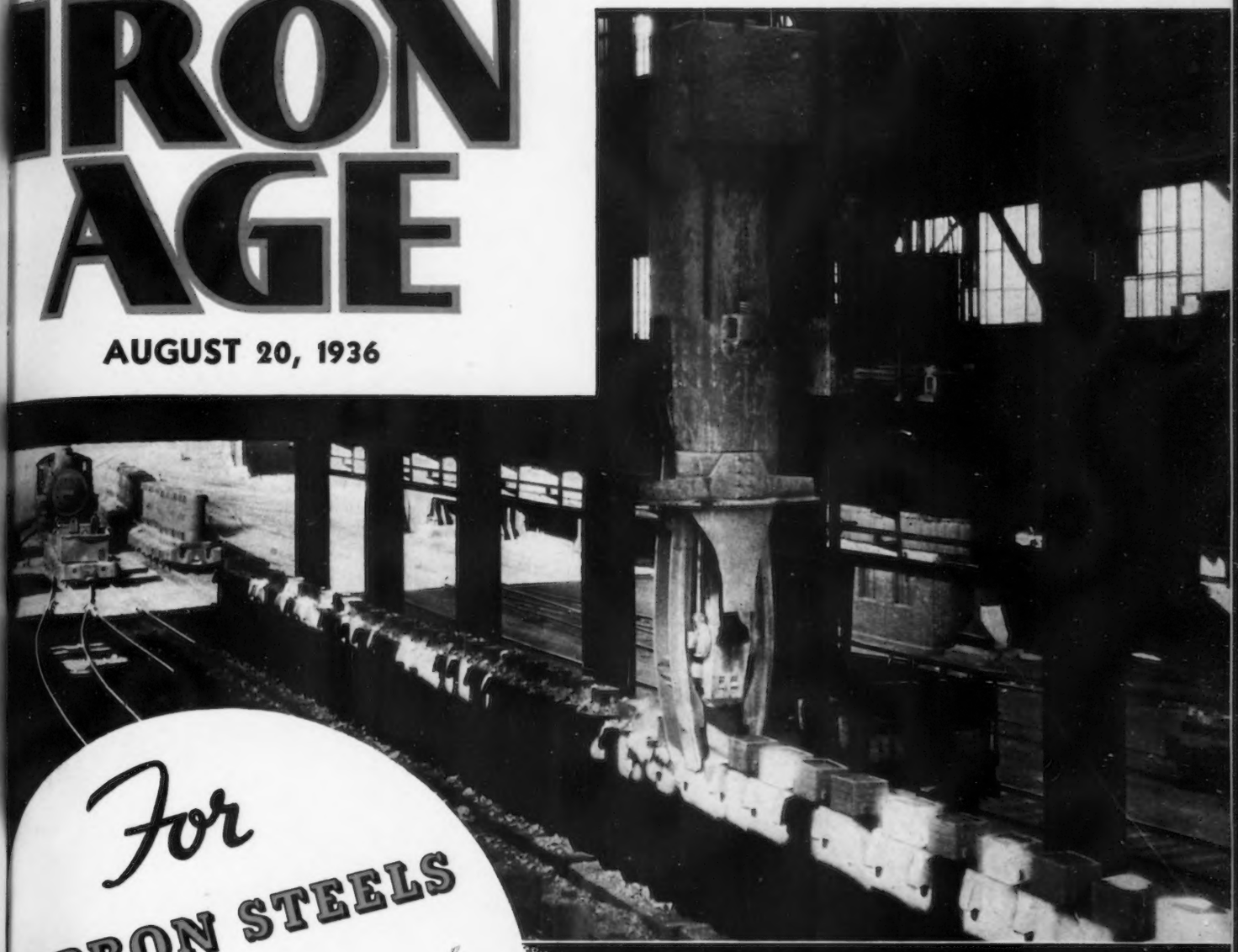
THE IRON AGE

AUGUST 20, 1936



THE IRON AGE, published every Thursday by the *CHILTON CO., (INC.)*, Chestnut & 56th Sts., Philadelphia, Pa. Entered as second class matter November 8, 1932, at the Post Office at Philadelphia under Act of March 3, 1879. $6.00 a year in U. S., Canada $8.50, Foreign $12.00. Vol. 138, No. 8

THE IRON AGE

CHESTNUT AND 56TH STREETS, PHILADELPHIA, PA.
Sales Offices
239 WEST 39TH STREET NEW YORK, N. Y.

Contents—August 20, 1936

Owned and Published by

CHILTON COMPANY
(Incorporated)

Executive and Publication Offices,
Chestnut and 56th Sts., Philadelphia, Pa.

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Member, Audit Bureau of Circulations
Member, Associated Business Papers
Indexed in the Industrial Arts Index.
Published every Thursday. Subscription Price: United States and Possessions, Mexico, Cuba, $6.00; Canada, $8.50, including duty; Foreign $12.00 a year. Single copy, 25 cents.
Cable Address, "Ironage, N. Y."

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AUGUST, 20, 1936

ESTABLISHED 1855 Vol. 138, No. 8

"Stylish Stouts" Versus "Boyish Forms"

ONE of the definitions of an "aristocrat" is "a person of rank in a community."

Using the word in that sense, we can say, with truth, that skilled workmen form the aristocracy of labor.

Skilled men take a natural and a pardonable pride in their craftsmanship. God help America if the time ever comes when they do not! The truest and soundest democracy is one in which there is room and opportunity for the aristocracies of mind and hand.

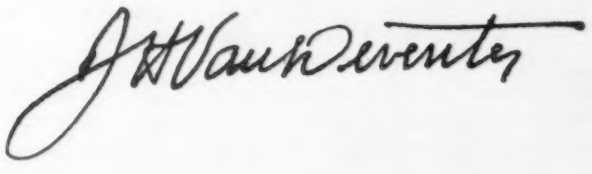
Skilled labor, of course, forms a minority in the entire field of labor. That, again, is a natural circumstance. Skill of any kind is the exception and not the rule. It comes from the possession of natural abilities above the ordinary or from intensive training or both.

Such artisans and craftsmen have and should receive considerably higher return for their services than what we call common labor. It is to the interest of the public and of industry that this be so, for this class of labor contributes far more to the advancement of general standards of living than does unskilled labor. If there were not a sizable "differential" in wage rates according to skill and ability, there would be little urge to acquire and exercise craftsmanship, especially since mechanical aids have taken the backaches out of most common labor jobs.

Skilled labor, union or non-union, would do well to resist the "leveling" process which threatens to reduce the differentials and which is the fruition of New Deal labor philosophy. The New Deal people think, talk and act in terms of masses.

John L. Lewis's mass unionization plan is a fruition of this philosophy. Note the enthusiastic support and attention that he has received from the President and from both the official Cabinet and the kitchen cabinet. Also note the quite different official attitude exhibited toward Mr. Green.

If ten fat ladies sit in a conference to determine dress styles with ninety thin ones, they are going to come out of it wearing "boyish form" garments and not "stylish stouts." A vote is a vote.



"The Invisible

THESE

Three standbys in the science of welding—"shot," flame and arc welding. Will they be scrapped?

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GENTLEMEN! Doff your hats to one technical man who is also a superb publicist. If Dr. Antonio Longoria—Cleveland's engaging Spanish-born consulting electrical engineer — never again speaks for public consumption, he has already proved that the average modest technical man could probably enhance his financial and social status if he were to revert to some of the practices of the ancient craft of alchemy. For in those days a savant's reputation varied directly with the vividness of his imagination and how successfully he shrouded laboratory developments with mysticism.

For readers unfamiliar with Dr. Antonio Longoria, the following facts will serve to establish a background. In a small apartment-laboratory at 12943 Clifton Boulevard, Cleveland, Antonio Longoria, B.Sc., M.D., E.E., and his assistant, Joe Pivowar, labor to adapt various electrical phenomena to problems encountered in modern industry. Dr. Longoria was born and educated as a physician in Spain, came to this country in 1911, forsook medicine for science, and thereafter became just another obscure inventor.

That is, obscure until he startled an unprepared Pittsburgh welding meeting on April 15, 1936, with exhibits of thin non-ferrous metals butt-welded together by an "invisible ray" which joined metallic sheets *not by fusion* but by *"breaking down the molecular attraction at the edges of the abutting pieces."* This "breaking down" takes place while the temperature is less than 700 deg. F., that is, at a temperature far below the actual fusion point. Dr. Longoria's Pittsburgh audience was not so impressed by his so-called "invisible ray" as it was by the indisputable evidence that his thin non-ferrous sheets (30 gage and thinner) were butt-welded together so successfully that *the joint was far superior to any obtainable on such thin soft metals by conventional welding methods.* Shortly thereafter a welding magazine printed an indefinite article describing another Longoria invention—the joining of the fine-wire mesh used in Fourdrinier paper making machinery.

At the same time a Cleveland welding expert wrote: ". . . the metal to be welded is brought up to some . . . relatively low temperature; the high-frequency vibration . . . breaks down the molecular bond so that the weld takes place in much the same manner as if the metal were brought to the molten state." ". . . there is little question but what this development promises to be the most important in welding in the last 25 years." The welding expert is connected with a Cleveland magazine which in a feature article on June 22 stated as follows: ". . . (it) may well prove to be the most remarkable scientific development of the century." ". . . he has welded (stainless steel) together perfectly, the temperature during welding not exceeding 700 deg. F."

However, Dr. Longoria did not become a national figure until he visited New York several weeks ago. The New York *Times* and other metropolitan papers devoted columns to "death rays," "invisible ray welding," and to his statement that "my patents were bought not to change the industrial world, but to preserve its *status quo.*" The *Times* quoted Dr. Longoria as saying that $6,000,000 had been paid

Ray" It Welds . . . It Smelts

for the patents, and a week later the *World-Telegram* quoted him as saying that only $3,200,000 was received and that ". . . (Dr. Longoria) did not want to wreck civilization and therefore was scrapping his death ray."

The result was that THE IRON AGE received numerous requests for additional specific information regarding the welding equipment, what results have been obtained and how this process may influence future welding technique. The

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By T. W. LIPPERT

Metallurgical Editor, THE IRON AGE

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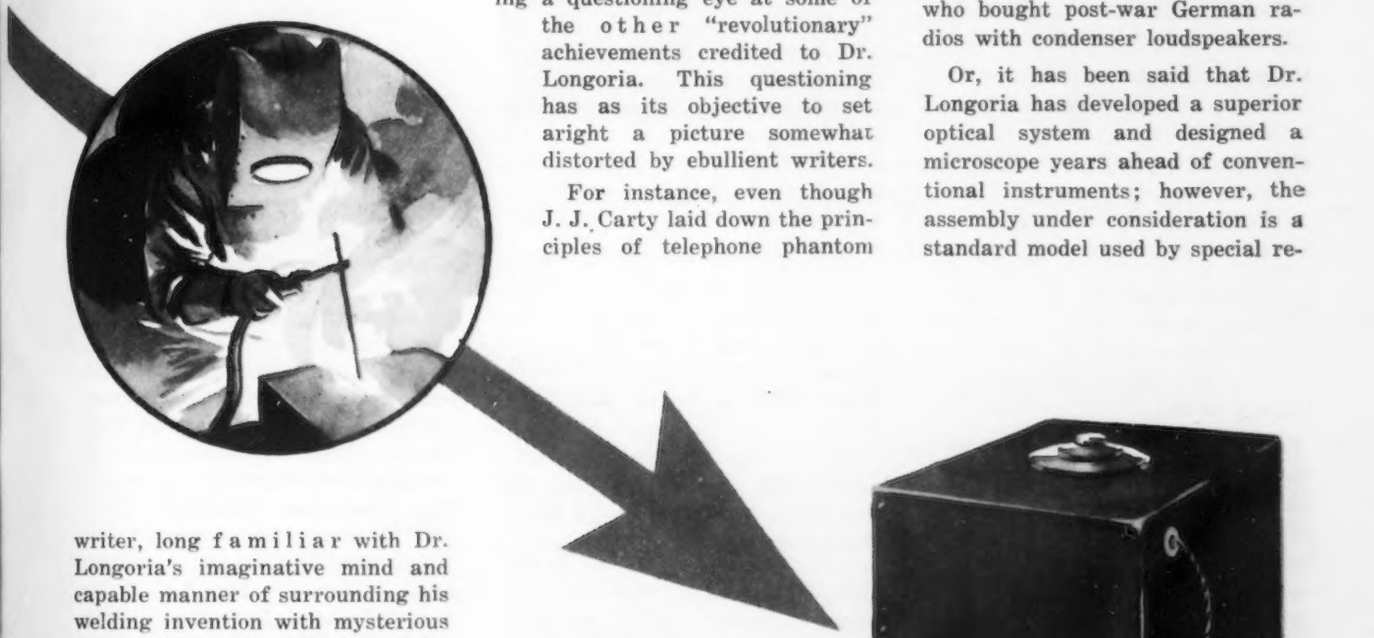
However, before embarking on the subject of "invisible ray" welding, the author cannot resist cocking a questioning eye at some of the other "revolutionary" achievements credited to Dr. Longoria. This questioning has as its objective to set aright a picture somewhat distorted by ebullient writers.

For instance, even though J. J. Carty laid down the principles of telephone phantom circuits in 1886 and literally thousands of men have contributed to its perfection, and, today, the coaxial system permits 240 telephone conversations over one wire, it has been stated that "(Dr. Longoria) . . . perfected the so-called phantom telephone circuit."

Or, the statement ". . . (Dr. Longoria) . . . proved electricity to be a vibratory emission by building a loudspeaker in which no magnets or windings were used," would fail to impress many radio amateurs who bought post-war German radios with condenser loudspeakers.

Or, it has been said that Dr. Longoria has developed a superior optical system and designed a microscope years ahead of conventional instruments; however, the assembly under consideration is a standard model used by special re-



writer, long familiar with Dr. Longoria's imaginative mind and capable manner of surrounding his welding invention with mysterious explanations and conflicting statements, hopes to answer these requests herein in a manner as analytical as the facts at hand permit. There will be no attempt to dramatize an otherwise conventional forward step in the welding art by confounding the issue with descriptions of mysterious "invisible rays" (what rays aren't?), "death rays," "destruction rays," etc., all of which border on the pseudo-scientific.

OR THIS

Dr. Longoria's "invisible ray" machine which joins thin non-ferrous metals perfectly. What's inside the box?

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search workers in pathological and bacteriological investigations.

To continue: Dr. Longoria supposedly kills "birds on the fly with high-frequency rays." The *World-Telegram* last week stated that this "death ray" had been discarded for the "sake of humanity." However, it seems a pity that prior to the scrapping, Dr. Longoria should forego the priceless opportunity to confound the next convention of physicists by bagging a pigeon, for instance, at a distance of, say, 20 ft.

Also, in print is the statement that Dr. Longoria perfected a surgical knife which disintegrates tissues by means of a high-frequency current. The spokesman for the medical profession says ". . .D'Arsonval and Tesla first investigated use of high-frequency energy to destroy tissue. Credit for the modern electrical knife goes to George Wyeth. However, Doctors Riviere, Doyen, Clark, Cook, Beer, Hart and Pozzi contributed to the early use. . . ."

One fact cannot be discounted—in the field of welding, Dr. Longoria has initiated a process worthy of detailed examination, even though its present status hardly proves it to be "revolutionary." There has been only one machine built, and this experimental unit was designed for butt-welding thin non-ferrous metal strips. When thin strips of ferrous metals or thick strips of non-ferrous metals have been passed under the welding head, the resulting joint has been far from satisfactory. These poor results, however, do not warrant criticism, as it is obvious that the real worth of the procedure will be proved only when larger machines are constructed and additional research refines the technique.

All but one specimen of butt-welded strip examined by the author were thinner than 30 gage. Brass can be welded to brass, copper to copper, copper to brass, phosphor bronze to 96-3-1 copper-silicon-manganese alloy, phosphor bronze to brass, etc. It is stated that any two metals can be joined (lead to tin, lead to steel, etc.) but the author has seen only those previously mentioned.

All the thin non-ferrous strips are joined by a beautifully uniform weld, there is no warping of the metal, the total affected zone is not over ⅜ in. wide, and there is only a small bead. In most cases the underside of the weld shows no discoloration, but the upper side occasionally has a slightly blackened and "sputtered" appearance.

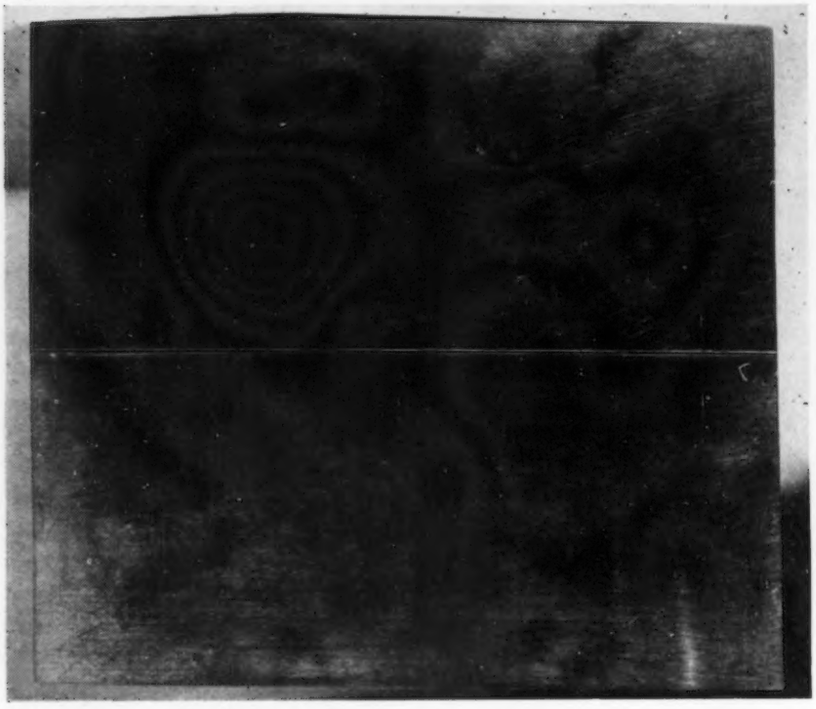

Fig. 1—A PERFECT WELD,

narrow and uniform, joins these two strips of pure copper.

That the weld is visually as much as could be desired is evident from the picture in Fig. 1, which shows two 36-gage copper strips joined. The Erichsen draws pictured in Fig. 2 were made by an independent laboratory, and they prove that the process has enviable physical merit as well. The center impression is across the line of weld and it is flanked by impressions in the unwelded copper. Note that the split in the center impression is normal to the weld—the other two impressions have similar splits on their far sides. The metal shown in Fig. 2 is 32-gage brass, which is generally hard to butt-weld perfectly. The cupping tests prove that there is no loss in ductility incident to the welding operation. Other tests have indicated little or no reduction in strength or fatigue resistance.

Again examining the pure copper weld in Fig. 1, the narrow joint indicates that Dr. Longoria has succeeded in *concentrating his welding energy to a small area and applying it just where it is desired.* This follows from the fact that copper is an excellent conductor of heat and ordinary butt-welding methods on such thin material results in considerable warping or buckling and a much wider welding zone.

This brings to a focus the natural question of *what is the nature of the welding energy?* On examining the copper joint the author noted a little heat discoloration next to the line of weld, and, also, there appeared to be an adjacent band of copper oxide which was easily removed with an eraser. This would indicate that the metal had actually *fused together.* However, this observation does not "jibe" with Dr. Longoria's statement that "at no time does the metal temperature exceed 700 deg. F.," or reports by other writers that a whole new principle of welding has been discovered, and that a high-frequency ray "breaks down the molecular bond and the metals weld together without fusion."

Whether there is actual fusion or whether a revolutionary "molecular joining" principle has been put into practice is of paramount importance. For in all welding processes the raising of the metal to a melting temperature often makes subsequent stress relief

treatments necessary or heat-treatment is required to correct changes in the metal's structure (as in stainless steel). Successful seam welding below the critical temperature would surely be a radical and invaluable discovery.

For additional light on this controversial issue, the author asked one of the country's cleverest microscopists for an analysis of several welds.

A cross-section of the copper joint is shown at 300 diameters in Fig. 3. Note the grain growth adjacent to the fused zone. This micrograph also clearly shows the "cored" appearance of fused metal. *Any cast single phase metal or alloy would reveal a similar pattern.*

To continue on this same question: The author saw two 32-gage stainless steel strips welded; the joint showed considerably more discoloration and the heat band was wider than that in the case of copper. The weld was obviously not fully satisfactory, but Dr. Longoria assured the writer that many better ones had been produced. There was a thin layer of dark oxide and a number of small pits along the line of weld, and a copper-color was noticeable throughout the fused zone. The joint as a whole had the typical appearance of a backed-up automatic arc weld using a bare rod and a little too much heat.

In Fig. 4 there is a cross-sectional view of this weld at 200 diameters, showing the normal crystal structure, the fused zone and the intermediate zone where *grain growth had occurred.*

Dr. Longoria has also welded fairly successfully two strips of 26-gage silicon steel. The joint secured was particularly encouraging in view of the general difficulty in welding this type of steel —for instance a gas weld generally results in buckling and a much wider heat zone and a less homogeneous joint. A micrograph of this weld is reproduced in Fig. 5. The view shows the normal crystal structure of the annealed strip, the fused zone and the intermediate zone where grain refinement took place.

Therefore, in these three cases the microscope reveals that the structural changes adjacent to the fused zones are typical of those ordinarily obtained with conventional fusion welding of these metals. The evidence seemingly proves that *Dr. Longoria's process results in actual fusion of the metals.*

From the foregoing it is evident that for certain types of the work the Longoria machine is more efficient than other welding equipment, even though there is fusion. The natural question of readers is how the "invisible ray" machine actually operates. Any description of the experimental unit is necessarily sketchy in view of the secrecy and mis-statements surrounding its operation. This condition is understandable when it is realized that the machine has yet to prove itself commercially, that very few patents have been issued on its operation and that a lawsuit threatens to hold up its exploitation.

A sketch of the welding head is shown on page 27. It is evident that the equipment is not bulky for the bakelite box enclosing the "works" hardly measures 9 in. by 10 in. by 10 in. high On top of this box there are three co-axial adjustment knobs, and, emerging from one side, there is an ordinary twisted flexible No. 12 lamp cord.

The complete machine is essentially a modified small-size lathe bed. All equipment above the ways

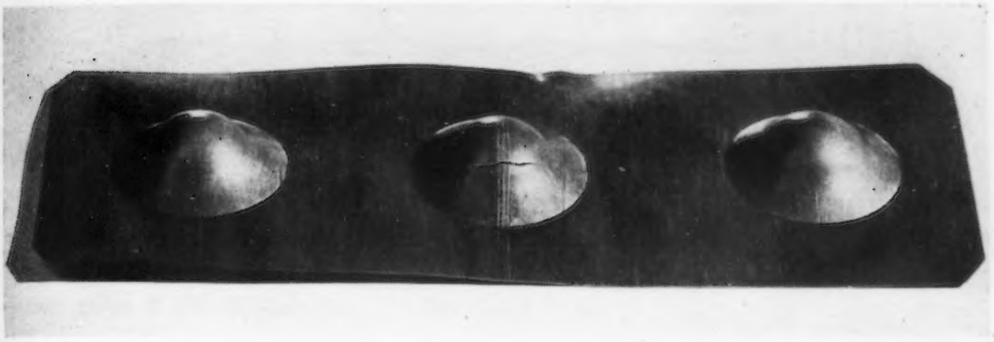

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Fig. 2— NO LOSS IN DUCTILITY, when Dr. Longoria's "invisible ray" welds 32-gage brass strips.

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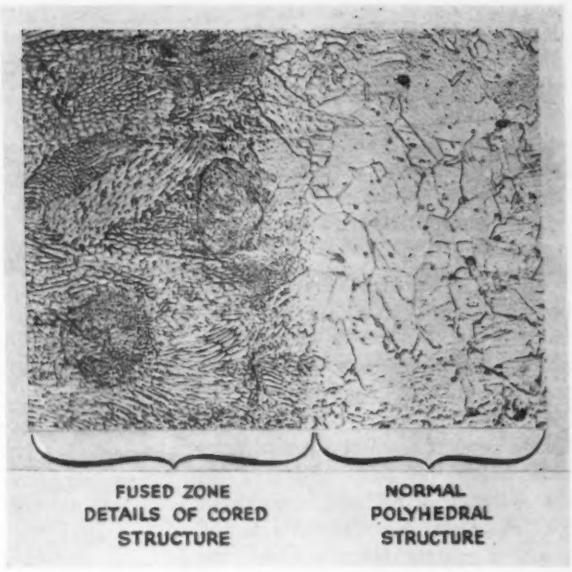

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Fig. 3— PURE COPPER, welded by the new process. Details at 300 diameters.

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of the lathe has been removed with the exception of a flat steel platform (carriage) which moves forward and backward by means of the lead screw. The bakelite box, or welding head, is mounted a short distance from one end of the lathe in such a manner that the steel platform will pass under it with only a fraction of an inch clearance. The steel platform is grounded by means of one wire leading to a nearby water pipe.

On the steel platform, a fine line has been scribed. Two strips of metal are laid on this platform so that the abutting edges fall directly along this line (the edges must touch, but are under no great pressure); the metal strips are held firmly in place by means of several screwdowns. A switch is turned, the platform carries the two metal strips slowly under the bakelite box, and they emerge from the other side perfectly joined. There is no perceptible heat, no vibration, no smoke and no noise with the exception of a slight hiss. It is possible to stop the strips when they are half through and reverse the machine, in which case the metal is joined only up to the point where the machine was stopped.

As the joined strips emerge from under the box they are not very hot. This, however, is not significant for the strips are thin and they are in close contact with the comparatively massive steel platform; even though the edges have been raised to the melting point the dissipation of heat is so rapid that the metal is only warm to the touch a second later. From the nature of impressions on welded soft copper strips, it is probable that there is a narrow roller within the box which presses the edges of the two strips tightly against the platform just before actual welding occurs. Thus there is very little air beneath the strips, which accounts for the bright appearance of the underside of the weld.

The "invisible ray" producing the weld is (said to be) high-frequency energy of the order of 2 kw. at between 1,000,000 and 2,000,000 cycles. This energy could be made to heat up the edges of the strips by induction (as in the case of the common induction furnace) but such operation is unlikely in view of the very narrow heat zone. More likely is

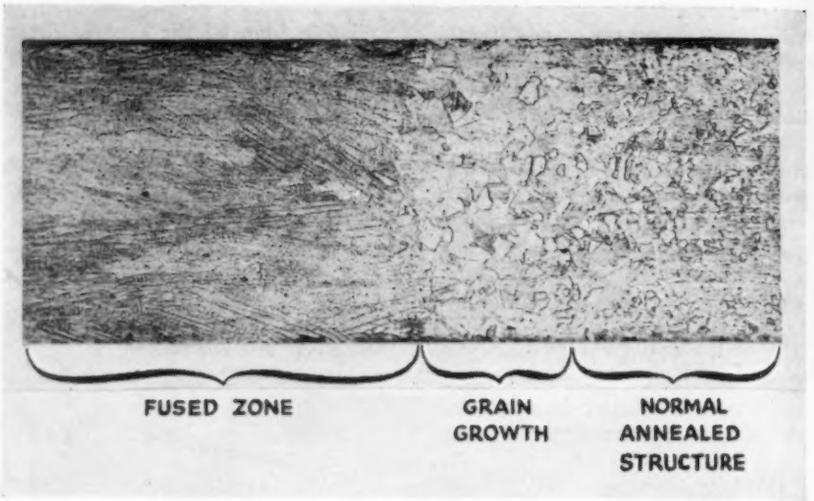


Fig. 4—STAINLESS STEEL,
welded by the "invisible ray." This view at 200 diameters indicates that actual fusion has taken place.

that there is a spark discharge along the edges of the metal (grounded on the steel platform) of such intensity that a narrow zone of metal is fused. It may be, however, that an electrode actually rubs along the abutting edges of metal; for it will be remembered that the stainless steel weld showed a distinct copper color along the line of weld.

It was noted that the twisted wire emerging from the bakelite box apparently lead to a bank of tubes. These tubes could have been the source of high-frequency energy and the twisted cord was certainly capable of carrying 2 kw. for some time without breaking down electrically. Dr. Longoria insisted, however, that the tubes had nothing to do with the welding machine, but that the twisted cord brought only ordinary 110 volt D.C. current into the welding head. If the latter is actually the case, it is hard to imagine just how a continuous discharge is brought about inside the box.

The experimental machine welds at a speed of about 30 ft. per min., but Dr. Longoria is positive that speeds of 60 ft., 100 ft., or even greater are possible with no great amount of trouble. In any case, the type of joint produced, the potential speed of welding and the possible adaptation of the process to all types of metals and alloys are all so attractive that hard-headed business men have undertaken its exploitation. The Yoder Co., Cleveland, heads a syndicate, whose other members are a large nonferrous manufacturer of Waterbury, Conn., James T. Begg, industrial promoter with Otis & Co., Cleveland, and recent Republican candidate for Governor of Ohio, and J. Edward Beck, a Cleveland investment broker. This syndicate is currently supervising the building of a larger machine at the Yoder Co. plant. In the fall, the syndicate will be transformed into a corporation with power to license and sell machines all over the world for the joining of non-ferrous metals and ferrous metals, with the exception of the United States. From present indications, it is probable that the American Steel & Wire Co. will have the exclusive ferrous rights in this country when and if a machine is produced which will turn out satisfactory ferrous joints. Dr. Longoria has said that this latter company has been paying him a monthly retainer fee ever since 1929.

It cannot be determined just what amount of money has changed hands between the syndicate and the inventor. The total amount committed is probably not much over $600,000, and it is likely that only part of this already has been paid. When the ferrous machine is perfected, the American Steel & Wire Co. is probably prepared to lay down a sizable sum for exclusive rights.

Any prophecy as to the probable future application of Dr. Longoria's welding process is dangerous, for the author is ever mindful of the statement made by Hippocrates 2300 years ago that "life is short, experience is treacherous and judgment is difficult." At one time per

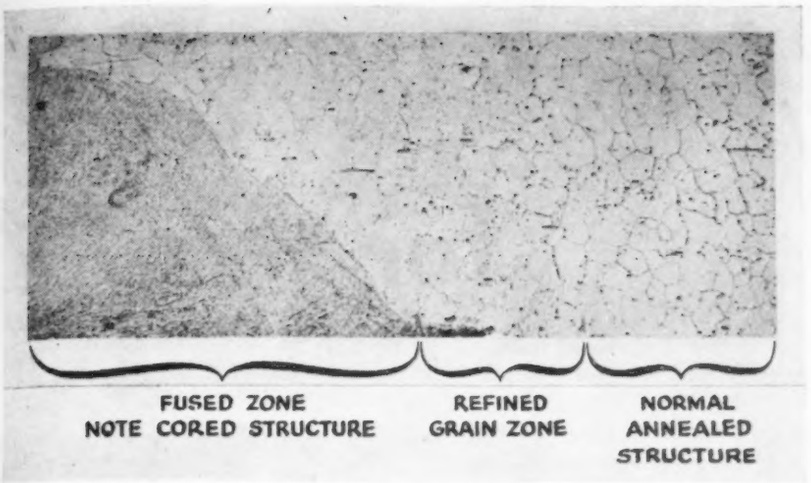


Fig. 5—SILICON-IRON ALLOY,
welded by Dr. Longoria. Structure changes shown at 100 diameters.

cussion welding seemed to have an excellent future but it turned out to be limited to a few applications. On the other hand, eight years ago no one thought that arc welds would ever have ductility, strength and fatigue resistance equal to that of the parent metal—nevertheless such is the case today.

The Longoria process undoubtedly gives good results on thin nonferrous metals, but it is equally certain that much work has yet to be done before it will be applicable to thick metals, particularly ferrous alloys. The author would venture to guess that it will be many a year before Longoria's machine supersedes the fast and efficient continuous resistance welders used in several large pipe plants or the speedy spot welders used in autobody shops. Dr. Longoria has said that ". . . ships henceforth will be welded instead of riveted at less cost, skyscrapers and towers once made feasible with rivets now may be welded, etc." This is a little in the nature of a fantasy inasmuch as it is a long step from a small laboratory machine to a portable efficient unit for such constructional work. In any case existing welding methods have been employed to build ships and "skyscrapers," and, furthermore, welding would be employed for such construction even to a greater extent if erection problems were not so difficult, "fit-up" not so expensive and architects not so slow in revamping their designs. That is, welding for construction purposes is dependent on many factors other than satisfactory welding equipment.

Dr. Longoria has also stated that "where I have been paid in a handful of millions, industries, particularly the steel industry, is saving countless millions by not having to scrap an enormous amount of equipment . . . my inventions have been bought to maintain the industry's *status quo*."

This also seems to be somewhat of a fantasy for the Yoder Co. is obviously interested in the welding machine so that they can equip their pipe forming and strip forming machinery with welding units. It may be assumed that they will be brought out as rapidly as their development permits. Furthermore, it hardly seems likely that the American Steel & Wire Co. has been paying a fee for years just for the privilege of scrapping an idea when it is perfected.

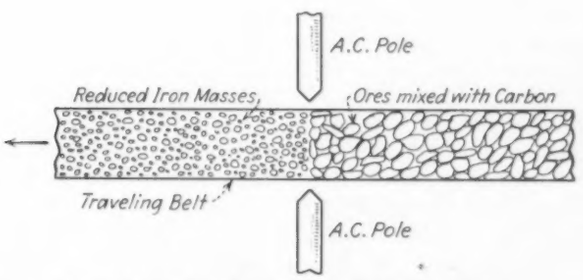


Fig. 6—HIGH-FREQUENCY SMELTING,
as practiced in the laboratory by the H. Kikuchi, of Japan.

High-Frequency "Smelting"

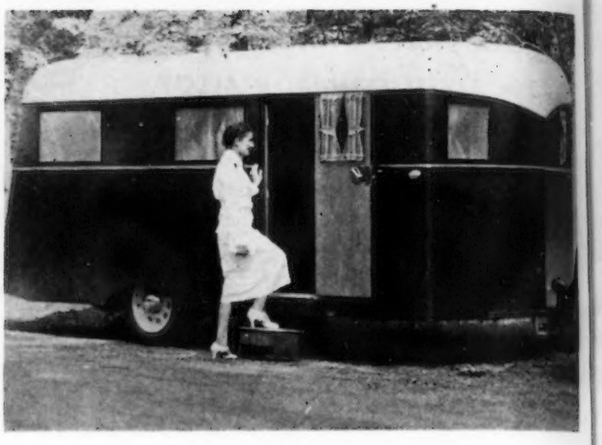
Dr. Longoria has made industry high-frequency conscious, and for this reason the following description of high-frequency smelting is appended even though it has no connection with the Cleveland welding experiments. Several months ago THE IRON AGE mentioned that a Japanese laboratory worker named Hideyuki Kikuchi was using high-frequency energy experimentally for the reduction of iron ore. Since that time we have received numerous requests for additional data. According to reports received from K. Honda, president of Tohoku Imperial University, and from several other Japanese sources, the Kikuchi process is still in the laboratory stage and it makes use of a current of about 1,000,000 cycles. It is a continuously working system, as pictured in Fig. 6.

Development of smelting by "electro-magnetic energy" may be a revolutionary metallurgical advance as claimed in Japan or it may be merely another disappointment in Japan's efforts to utilize her iron sand deposits. Kikuchi makes use of small furnaces, and a variety of ores have been sucessfully smelted experimentally. Patent claims specify the rapid refining of iron sands, iron ore or the liquefaction of coal.

The Japanese government is building an experimental plant costing $147,000 at Yawata, and several commercial companies are considering the building of similar equipment. If the procedure develops commercially, it will probably alleviate Japan's "hunger" for ore, so evident in recent years. Although Japan has millions of tons of iron sand deposits on the northern coast, the steel industry has been forced to reach out into foreign areas for all iron ore supplies. The Japanese army is urging the Kikuchi experiments forward, for this may be the means whereby it will avoid the danger of the steel industry being "choked" in war time by naval and military blockade.

The *House Trailer Boom* for *Metal*

PHENOMENAL growth has been shown this summer by a new industry centered in Michigan, close to its automotive parent. This analysis of present trends is based on visits to ten of the leading manufacturers having a total volume of 700 units a week.



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QUIETLY and unostentatiously, as was the stage set for world dominance in automobile production a third of a century ago, Detroit and southeastern Michigan have, during the past six months, become the center of another related industry which some observers predict will have economic and social effects as far-reaching as those developed from the horseless carriage. This new industry which has shown such phenomenal growth in recent months is that of the manufacture of trailer coaches. Why the industry should have blossomed in Michigan no one knows, other than it is an offshoot of the automotive industry, although as yet none of the large automobile manufacturers have entered the field. It is quite likely that some may do so, however, as soon as the volume of sales reaches a point where mass production methods are used, calling for large expenditures in tooling and equipment. Assembly lines are in common use, however.

Many of the companies now producing in this area have as executives men who have been engaged in custom body work and in building commercial truck and trailer units, but it was largely by accident that the man chiefly responsible for the development of the industry should have been a Detroiter. Oddly enough, his former business was running a small biological laboratory. Arthur G. Sherman, president of the Covered Wagon Co., ranked as the largest manufacturer of travel trailers in the United States, is the man who really started the present trailer boom. He got his idea from camping out in tent-type trailers and later a home-made box-like affair, built in 1928, which his children called a "covered wagon." By 1932 so many families had inquired about this type of camp housing on wheels that Sherman exhibited an improved model at the Detroit Auto Show and as a result, secured sufficient orders to employ 20 men in a plant having 13,000 sq. ft. of floor space. Three times in four years the Covered Wagon Co. has been compelled to move to larger production quarters. In November, 1935, operations had expanded to a point where the company purchased the former plant of the Copeland Products Co. (refrigerators) in Mt. Clemens, containing 150,000 sq. ft. of space. In May of this year the company added a spraying and drying unit and leased three other buildings for fabrication, bringing the present productive space up to 200,000 sq. ft.

When the Copeland plant was bought last winter, it was expected that the space provided would take care of expansion for the next five years. It was not dreamed at that time, however, what a tremendous growth in sales and volume would take place. Total 1935 production was 1134 units in two models, almost triple that of 1934. In June, 1936 alone, production was 1234 units in three models. The average daily run is now around 65.

The history of this company is typical of many in the field. Silver Dome, Inc., in Detroit, recently tripled its floor space to 72,000 sq. ft. and is now producing between 12 and 15 trailers a day. Palace Coach Co. in Flint has also practically doubled its space and is producing about 10 units a day. The Aladdin Co. of Bay City has recently taken over additional space and expects to be producing 10 a day before very long. Roycraft Coach Co. in Chesaning, Mich. is

its Market Possibilities

Products . . .

Photo by Covered Wagon Co.

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By FRANK J. OLIVER
Detroit Editor, The Iron Age

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currently producing 12 a day and is planning an expansion so as to double this output next year. The Vagabond Coach Co. of New Hudson, Mich. is working two shifts and has acquired additional space in another part of the town. Its production is four a day. Many smaller companies average one a day.

Most of these companies employ between 100 and 150 men and are at present operating on a 10-hour day, six days a week. Covered Wagon Co. is working two shifts in several departments. On Dec. 30, when the company moved into its new Mt. Clemens plant, there were 260 people on the payroll. On June 30, 1936 there were over 1100. From this, it would appear that the house trailer industry is the fastest moving industry we have today. Why people are suddenly going over to house trailers no one seems to know. Typical buyers are elderly couples living on small retirement incomes and with the urge to travel. There are also large numbers of people, estimated at over 100,000, who are living in these types of houses exclusively. Operating expenses are much less than paying rent and there are no land taxes to be taken into account. Vacationists offer a big market and the coaches are designed so that they may be used either in summer or winter for the late fall hunting season. Prophets like Bill Stout and Roger Babson predict that within 20 years more than half the population of the United States will be living in automobile trailers.

Several of the important trailer manufacturers have been mentioned. It is estimated that there are anywhere from 250 to 1000 trailer builders. The majority of these, however, are small back-alley shops or garages turning out from one to half a dozen weekly and selling their product as fast as they can complete a unit. They will continue to exist so long as the few real producers continue to fall behind in keeping production stepped up to the present buying demand. At first most of these factories were selling direct. Within the last half year, however, the companies have built up a dealer and distributing organization almost wholly automotive in character. Covered Wagon has 700 outlets, a fact that explains its huge lead over other makers. In the larger cities, however, such as New York, Chicago and Detroit, dealers handling travel coaches exclusively have been established. Such dealers have placed orders running as high as $100,000 with the factories at a single time.

Trailer prices range all the way from $345 for an 11-ft. weekend model to $12,000 for extra fancy custom-built jobs. The real volume builders, however, supply coaches selling between $400 and $1200, and those in the $600-$800 class are the most rapid sellers. A few builders offer standard models in the $1800-$2100 range or higher.

As it is built today, the average trailer coach, if we are to judge by the output of the larger builders, is constructed largely of wood, using a hardwood frame and plywood panels on both inside and outside. Occasionally pressed wood board such as Masonite replaces plywood for the exterior. Typical covering is artificial leather or Fabricoid. Interior trim is almost entirely plywood and some of the best grade of vehicles have their cabinet work done in solid wood including some of the more expensive types such as mahogany.

Steel Uses

This is not to say, however, that there is little metal used in the construction of these trailers. Many companies are using a metal chassis or wood reinforced with structural angles or channels. The Roy-

craft Coach Co., for example, uses a special frame made of 2 x ¼ in. square tubing reinforced with a wood core at junction points. The chassis under the Palace coach is made of 3 x 2-in. 6-lb. channel steel with cross members welded into the main channel. The Trotwood Trailer Co. is using a channel steel combined with seamless drawn tubing. More than one company that is using wood chassis frames today is reporting that it will be using a steel frame by next year. Already the Saginaw Stamping & Tool Co. is producing an all-welded steel frame made of 2 x 2 x 3/16 in. steel angles in combination with 2 x 1½ x ¼ in. angles notched so as to get a flush floor support. This company does not make trailers but is supplying certain accessories, including this steel chassis, to the trade. This particular chassis incorporates independent wheel suspension employing coil springs of the "knee action" type. The wheel housing, which is integral, is made of heavy gauge flat steel and is reinforced with angle steel which carries the spring load. A bridge truss design is featured for the longitudinal frame members and three separate X-members give exceptional rigidity to the structure. The Ozark trailer employs a drop-type channel frame comprising two main channels bolted alternately over and under the floor.

The Travelcar Co. of Detroit makes a line of coaches featuring steel side and roof frames made of T-sections arc welded together. It also has independent wheel suspension, like the Trotwood trailer, employing leaf springs encased in a welded steel housing for one-half its length in order to prevent slippage under torsional strain. The spring supports are carried in cross channels made up of two angles bolted to a center plate. Other cross members of the chassis, however, are wood. A cast steel hitch member is arc welded to the bottom angle sill of the steel side frame. Plywood is used for the sides and it is attached to the frame with flat head screw bolts. This company produces about eight units a week.

A few weeks ago, the Edwards Iron Works of South Bend, Ind. announced it would begin producing trailers on Sept. 1 featuring an all-steel chassis and an all-steel body frame. A former body engineer for Hudson Motor Car Co. is the designer. An innovation is to be the shipment of the unit in knock-down form to dealers. It will also have metal cabinets and a ventilating system between the walls.

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The "All-Steel" Coach

As to whether there is a trend toward the use of a steel body at the present time, the answer seems to be no. There is one company in the field featuring such a body. It is the Kabin Koach Co. of East Detroit, now producing about twelve "all-steel" coaches a week. H. C. Worden, who heads this company, is a body engineer who has been connected with both the Briggs Mfg. Co. and the Murray Corp. The Kabin Koach has an arc-welded steel chassis frame made out of 2 x 2 x ⅛ in. angles. The side walls are made up in sections by attaching body sheets of 18 and 20 gage oak frames 2¾ in. wide. The wood frames are bolted together to form the unit side walls. The steel top follows

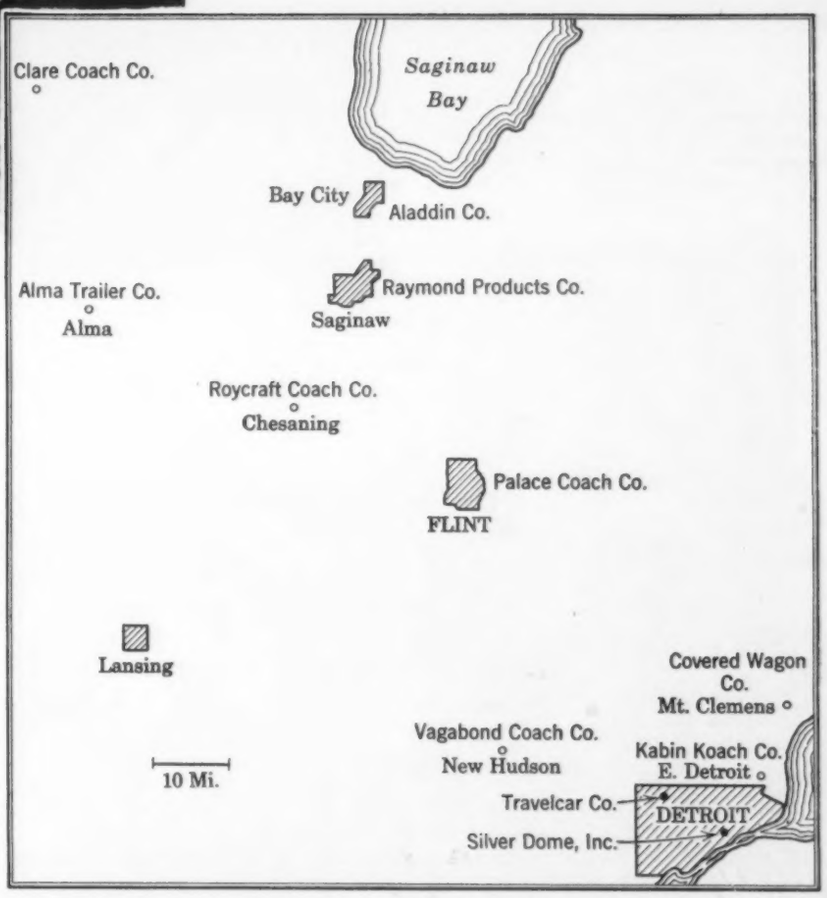
IS the public interested in house trailers? A view of the Sport and Trailer Show, Los Angeles, in May.

conventional automobile lines with a soft center composed of black Fabricoid spread over Kersey felt on top of chicken wire which is stretched over an oak frame. The metal part of the roof is shaped by hand under a flexible power hammer such as is used for bumping out bodies. It is formed of ten pieces gas welded together on a metal jig. Inside, the steel wall is painted with aluminum to act as an insulator and under the roof metal there is gasket paper. The interior is finished with plywood which acts as a further insulator plus the 2¾ in. of dead air space between the walls. The company claims that its coach was the Mecca for visitors at recent "Tin Can Tourist" assemblies because although standing in the sun, it was cooler than most other outfits shaded by trees.

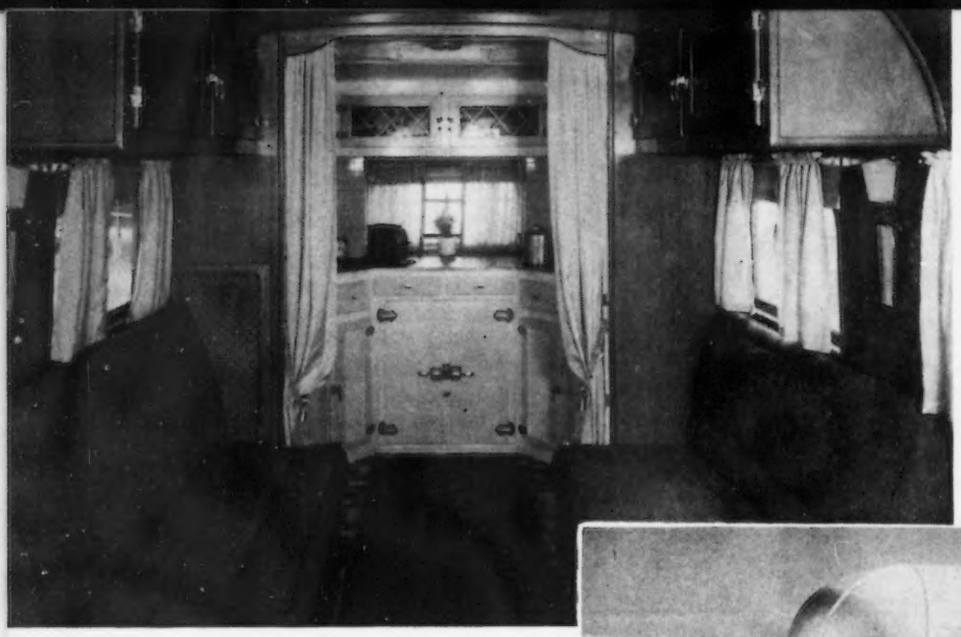
Arguments Against Steel Walls

The other side of the story is given by manufacturers of the conventional type tourist coach employing a Fabricoid exterior over plywood. From a sampling of ten leading companies, 80 per cent of the output is so finished. Here are some of the arguments given:

(1) Steel is too heavy; it weighs 1½ lb. to the square foot, where-



House trailer making is at its maximum density in the motor car plant district.



ABOVE

THIS charming interior shows what can be done with fine cabinet work and good design. The Roycraft deluxe model has a purchased ice box built in.

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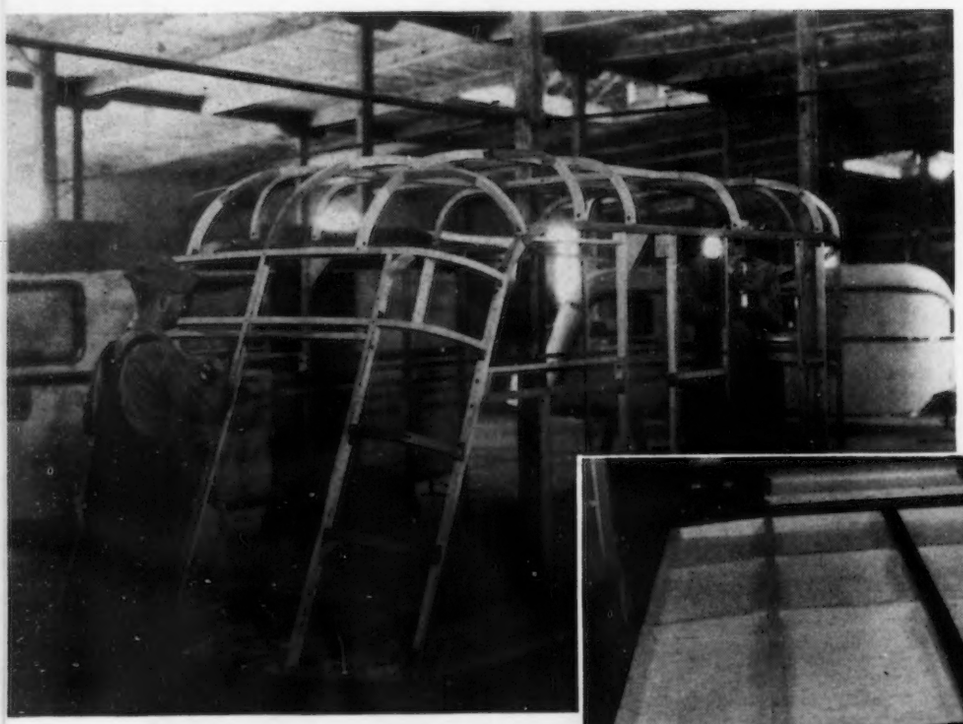
AT RIGHT

COMMERCIAL types of trailers are finding a wide market. The Aladdin coach has a sheet steel nose, formed under a power hammer.

as plywood side wall weighs but ⅞ lb. (Kabin Koach's 19-ft. model weighs 2800 lb. as compared with 2100 lb. for Covered Wagon's 18½-ft. coach, 2300 lb. for Travelcar's 18-ft. steel frame model.)

(2) Steel conducts and attracts heat too easily. The inside of an automobile is livable on a hot day only when the car is in motion with all the windows open. A trailer remains stationary many days at a time and so cannot be cooled by a rush of passing air. A steel trailer, these people point out, cannot be insulated against heat or cold and is therefore impractical. On the other hand one of the leaders in the industry, selling a Fabricoid covered coach, says the only satisfactory insulation is dead-air space of sufficient dimension to prevent the transmission of heat in either direction. Kabin Koach, incidentally, has the largest air space of any. (It looks as if



ABOVE

WOOD framing predominates in today's trailer. This is an Ozark model, bolted throughout and braced with steel angle plates at the corners. Floor is bolted to longitudinal steel channels.

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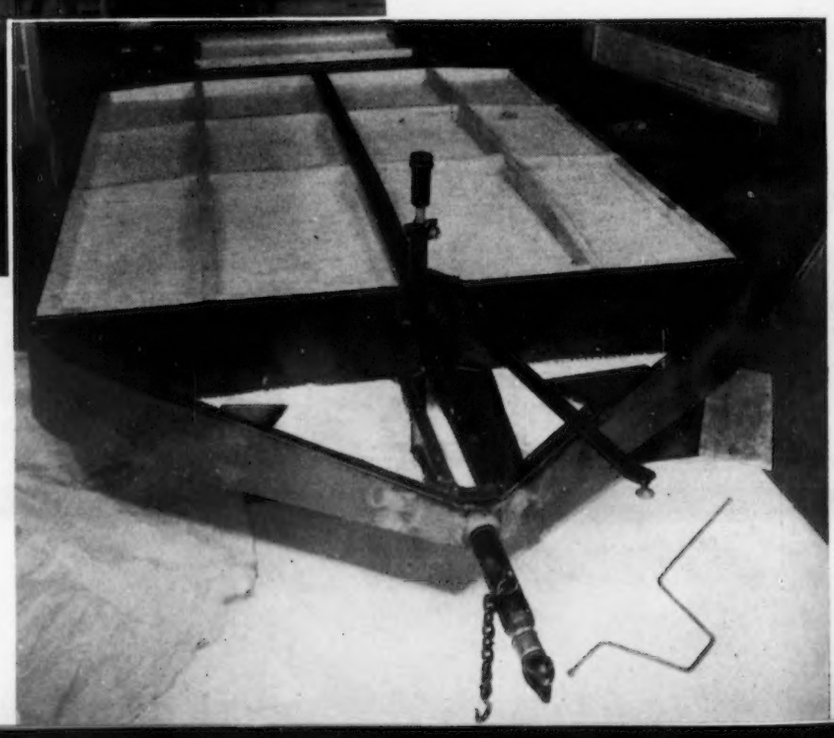
AT RIGHT

SILVER DOME'S chassis incorporates a welded steel V-front base which also houses the parking leg assembly.



there would have to be some official AAA tests to clear up a controversy of this kind.)

(3) The body of a trailer is not protected from scraping against branches of trees and brush. Consequently if it passes through such wooded places the paint is scraped off and steel shows ugly rust spots. (Sharp branches may also tear a Fabricoid coating, particularly if it is backed up by soft wadding.)

steel trailer on the other we have intermediate grades using part of both. The Aladdin Co., for example, makes a trailer with a rounded front nose made of sheet metal. This nose is made of four pieces of steel welded together after being shaped by hand under a power hammer. Silver Dome employs sheet metal construction on its V-front base, which is arc welded into a box section for strength. Its

wood panels mounted over framing of either hard-wood or plywood, and covered with 10-oz. duck, painted with aluminum finish. Generally the corners are made of sheet metal. On production jobs like the Covered Wagon, these sheet metal corners are stamped, although they are more often knocked out under a power hammer. Another place that sheet metal is almost invariably used is for the wheel housings which may be of galvanized steel riveted and soldered together, hot rolled annealed steel, or Galvan-

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ABOVE

POWER hammering of sheet metal is coming back. Roof sections of a Kabin Koach being shaped after gas welding. Aladdin's steel nose is also formed in this manner.

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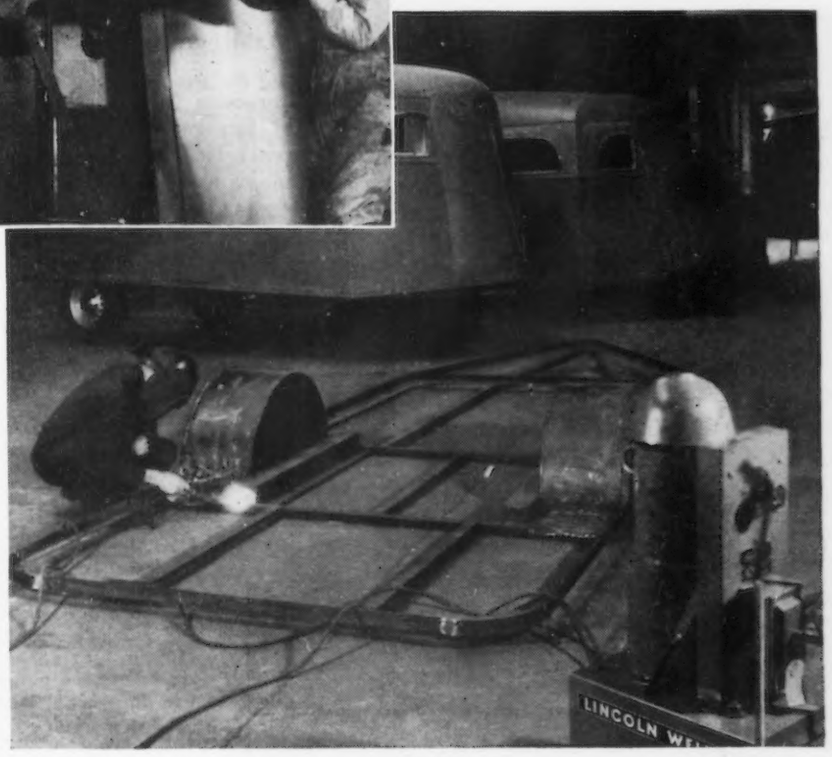
BELOW

KABIN KOACH has an arc-welded frame made of standard angles, and a steel body shell mounted on a hardwood frame. Roof is also steel, with soft center section.



(4) Lastly, steel is said to be impractical in that in the event of an accident, the body bumping necessary to straighten the steel body is much more difficult and expensive than to repair plywood, which is not nearly so readily damaged because of its resilience.

One of the chief arguments in favor of the Fabricoid outer finish is the fact that once installed in place with tacks, it requires no further finishing. At least two days can be saved in time of fabrication over a steel or fiber board exterior coated with synthetic enamel. It does not tear readily, nor fade and is easy to keep clean.

Composite Construction

In between the extremes of the Fabricoid-covered plywood-wall trailer on the one hand and the all-

function is to insure maximum strength at the point where the coach couples up to the car. This V-front base also houses the parking leg assembly with its built-in leveler jack. Silver Dome also uses a composite type construction in its door, employing sheet steel nailed over a hardwood frame. The inside door panel is also of steel and a full-length piano hinge is featured.

Typical roof construction is plynealed seamed and welded. Many trailers like Covered Wagon have water tanks formed to fit the interior. In this particular unit they are made of Galvanneal formed on hand brakes with a so-called Pittsburgh lock seam. Other trailers use commercial galvanized tanks bought on the outside. Shower stalls are lined with galvanized steel, but few trailers are so equipped.

(To Be Concluded Next Week)

Cost of *Complicated* by *Skeleton*

By J. H. EASTHAM

A marine engine discharge pipe casting 16 in. in diameter, 10 ft. long, and weighing approximately 1500 lb. is shown in Fig. 1. Its general design is best described as a 90-deg. elbow attached to a 15-deg. offset; the elbow flange to connect with the low-pressure cylinder, the elongated offset end discharging exhaust steam into the horizontal style condenser.

Early practice favored the assembly of two separate castings, flanged and bolted together at the broken line, a system which made things easy for the foundry department, but increased machining and assembly costs. The decision to economize in those departments put a different complexion on the matter, particularly when it is realized that orders for marine engines are usually booked one at a time, with scarcely any two alike either in horsepower or design. Standardization of patterns is, therefore, possible to a limited degree only, and the number of instances where existing patterns or coreboxes can be altered to suit a new order is very limited.

Merging the two castings, and thus creating a hybrid design, would, if ordinary procedure had been followed, have made the production cost much higher in both pattern shop and foundry. In order, therefore, to maintain the saving in the machine shop, a preliminary conference as to ways and means from the blueprint stage became advisable.

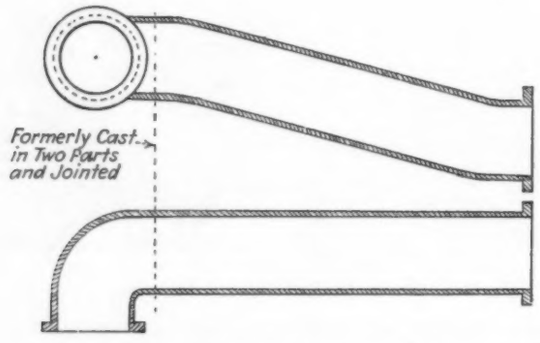


FIG. 1—Marine engine discharge pipe, 16 in. inside diameter, 10 ft. long and weighing about 1500 lb. The upper view shows the position in which the pipe was molded.

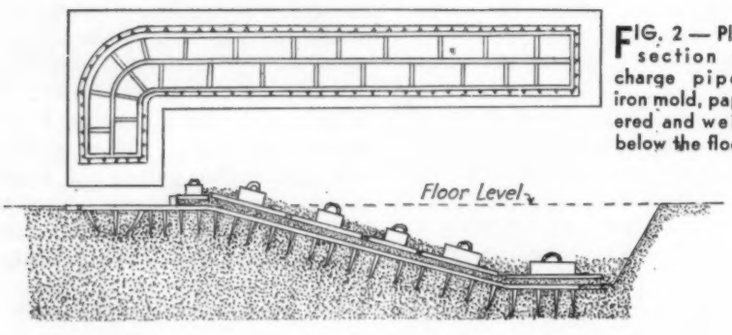


FIG. 2—Plan and section of discharge pipe core iron mold, paper covered and weighted below the floor level.

Decide on Skeleton Arrangement

Instead of a highly finished full pattern and pair of expensive coreboxes, to be used once, with no prospect of a repeat order, a skeleton arrangement in both coreroom and on the molding floor was decided on, the casting to be molded in the position indicated in the upper view at Fig. 1. A sweep frame of 1-in. lumber, following the contour of the projected pipe casting, and fitted with reversible battens designed to permit the frame to stand in accurate position on a machined plate—either side up as needed—was laid in a prepared bed sunk in the foundry floor, that portion of the frame in-

Pipe Casting Reduced Patterns . . .

tended to form the elbow being accurately levelled in line with the shop floor. Inside and under the frame, sand was packed to a degree of density necessary to prevent swelling when receiving molten metal, and yet soft enough to be compatible with the use of a "dabber stick."

The inside of the frame was then strickled out to its full depth of 1 in., and the core iron molded to "fishbone" design. The prongs following the curve of the body were shaped by using a pointed bar, bent to shape, chalk-marked to indicate the length, and thrust into the sand at the proper distances apart. The frame was then removed, and all parts of the mold below the floor level covered with heavy paper. Sand was then spread over the paper-covered area to a thickness of about 2 in., a number of flat thin plates laid over the whole, and weighted to prevent strain or leak when pouring the metal. The molten iron was introduced into the top or elbow end left open for the purpose. This practice is in line with that resorted to when molding large cylinder port-core irons, and is shown in detail at Fig. 2.

Drag Half of Core

When sweeping up the first or drag half of the core, the frame was laid on the machined deck of an oven car and the same lot of light steel plates used to cover the core iron mold were packed under the high portion to form a flat working face. A thin layer of prepared sand was then laid in readiness to receive the clay-washed core iron. The half core was then rammed and swept to shape from the elbow end upwards, as indicated in the composite views of the partially made core in Fig 3. The frame and packing removed, the half core was blackwashed and dried over night, a maximum oven temperature of 450 deg. F. preventing "burning" the surface of the core at this or a later stage.

The following morning, upon its removal from the oven, the core was lifted from the car, turned over on soft sand and empty bag packing, and replaced on the car deck in position to permit the cope half to be swept to shape. As shown in the view of the completed core, Fig. 4, this latter operation was accomplished by reversing the position of the frame, which was

(CONCLUDED ON PAGE 61)

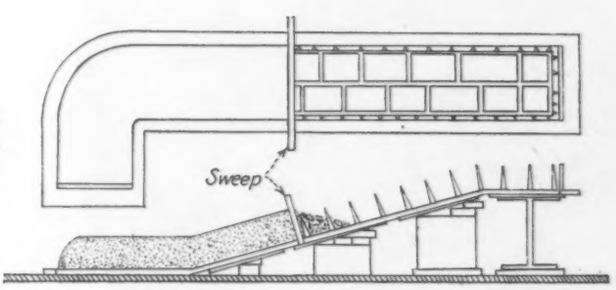


FIG. 3—Drag half of discharge pipe core partially swept.

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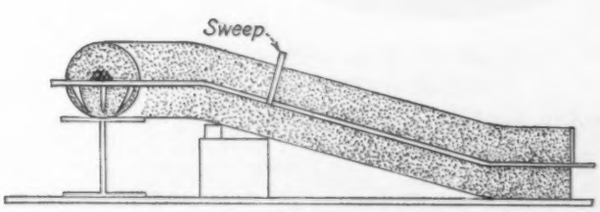
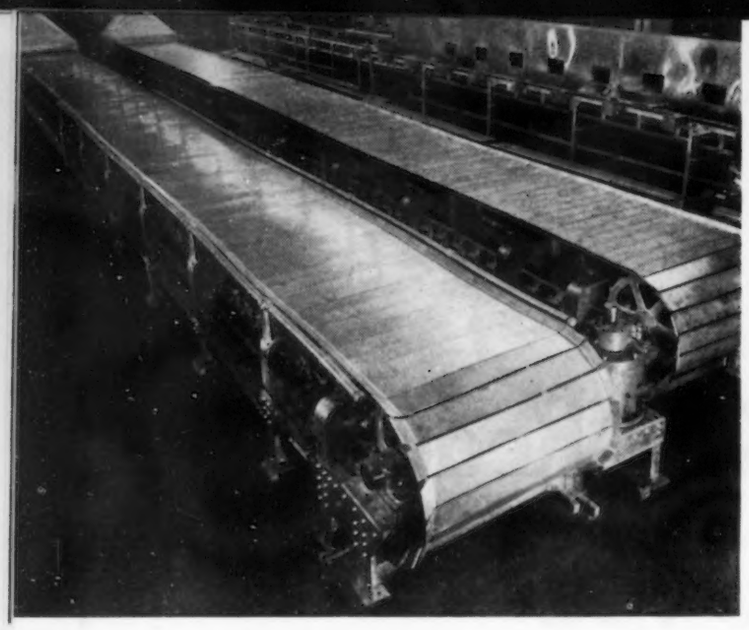
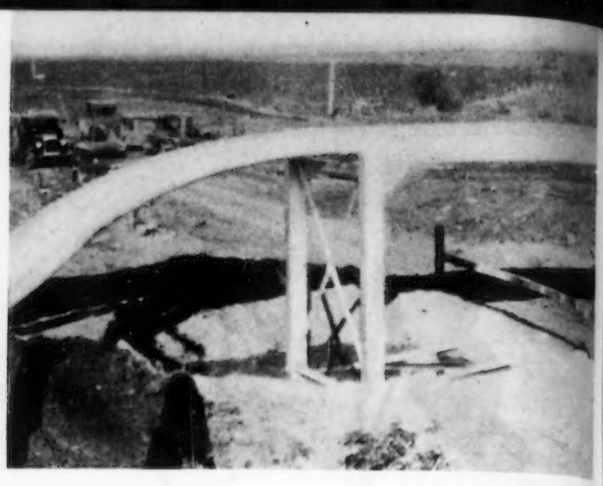


FIG. 4—Completed core before second drying.



STAINLESS STEEL IN PACKING HOUSE CONVEYORS

CONVEYORS with stainless steel slats are used in Armour & Co.'s Chicago plant for inspection of the viscera of beef. Tables are 75 ft. long and conveyor slats 5 ft. 6 in. wide and ⅜-in. thick. About 11 tons of Enduro stainless steel was used and tables were fabricated by Albright-Nell Co., Chicago. Work required very accurate shearing of the strip, perfect alinement of all sections and rather difficult welding operations in attaching the stainless steel to form the conveyor belt.

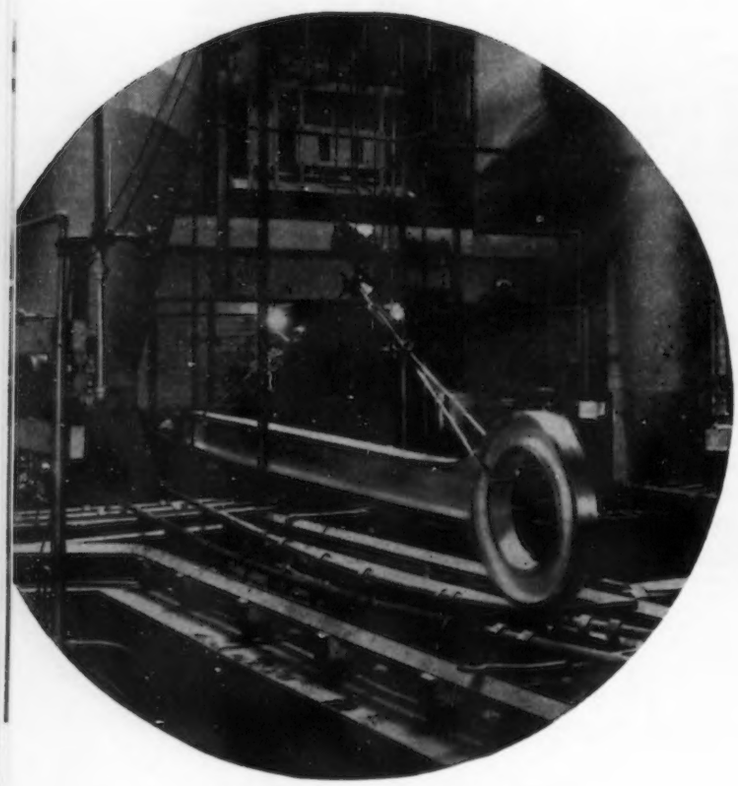


OIL PIPE LINES BRIDGE

OUT in Kansas it was necessary to carry oil pipe lines over an unfinished of passing motorists. The line was built for the Sinclair

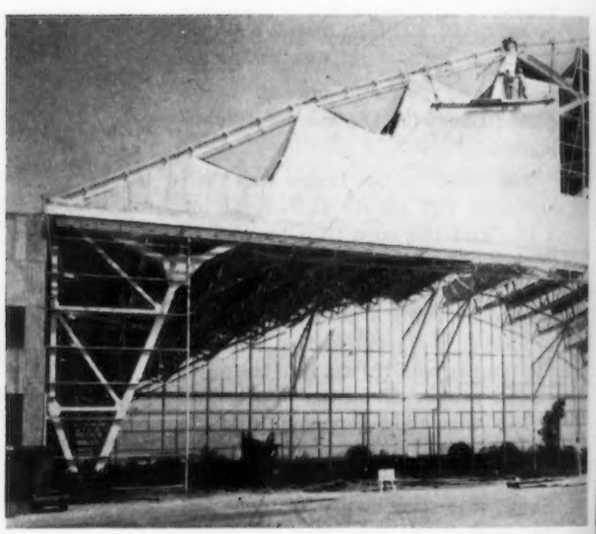
New and Varied

As the Camera



LOCOMOTIVE MAIN RODS CHROME PLATED

CHROME-PLATED, heat-treated alloy steel locomotive main rods, consisting of two 12-ft. main rods and four 9-ft. side rods, designed and built by the Timken Roller Bearing Co., for use with its bearings on heavy-duty, high-speed steam passenger locomotives. Weighing only 510 lb., the rod shown represents a substantial saving in weight as compared with standard construction. Chrome plating required construction of a special plating tank 17-ft. long, 3-ft. wide and 3-ft. deep.



WORLD'S LARGEST

DOUGLAS AIRCRAFT Co., Inc., Santa Monica, Cal., has work nearing kind in the world. It is located on air field adjoining company plant. height of pin is 85 ft.; the width between pins is 274 ft. 2 in., and width

WELDED BOTTOM PLATE

THIS immense plate of sheet steel, 220 ft. in diameter and 300 tons in constructed by Stacey Brothers Gas Construction Co., Cincinnati, at Ford ever built. The circular plate is made of hundreds of small plates welded as high as a

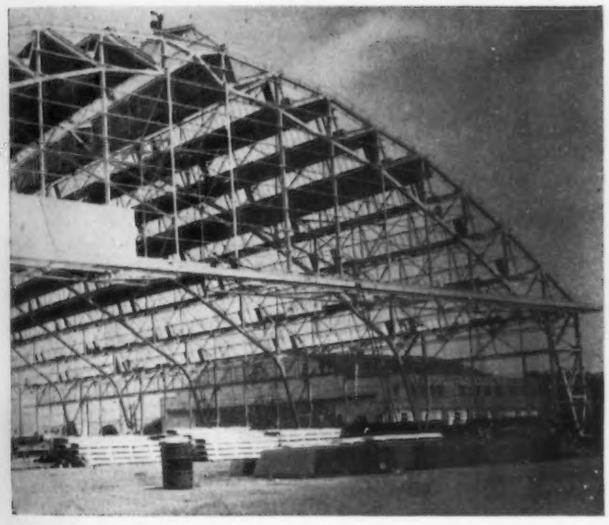
HIGHWAY IN KANSAS

highway, so a bridge was built that carries the pipe over the heads Pipe Line Co. (Photo by Lincoln Electric Co., Cleveland.)

STAINLESS STEEL IN WHITE HOUSE KITCHEN

STAINLESS steel was used extensively in the new White House kitchen—for the stove, sinks, counter tops, metal cabinets, for a dish washer and for portable and permanent Thermotainers. Equipment was fabricated by Waters-Genter Division, McGraw Electric Co., Chicago; Tracy Mfg. Co., Pittsburgh; Excel Metal Cabinet Co., Jamestown, N. Y., and Hobart Mfg. Co., Troy, Ohio.

Uses for Steel Sees Them...



AIRPLANE HANGAR

completion on a new steel hangar—said to be the largest structure of its Unit has a length of 300 ft. and an over-all width of 285 ft. The clear at a height of 30 ft., 250 ft. Structure has a floor area of 85,500 sq. ft.

CHEMICAL TANK MADE FROM ONE STAINLESS PLATE

CHEMICAL tanks have for some time been made from stainless steel, but this one was fabricated from one plate, 1 in. thick, 116 in. wide, 231 in. long, weighing 7500 lb., which was rolled from a 5-ton ingot by Allegheny Steel Co., and fabricated into the tank by the J. P. Devine Mfg. Co., Mount Vernon, Ill. Necessary accessories, such as sheets, bars, tubing and smaller plates, weighed 12,000 lb. and all were made from Allegheny's 18-8 metal.

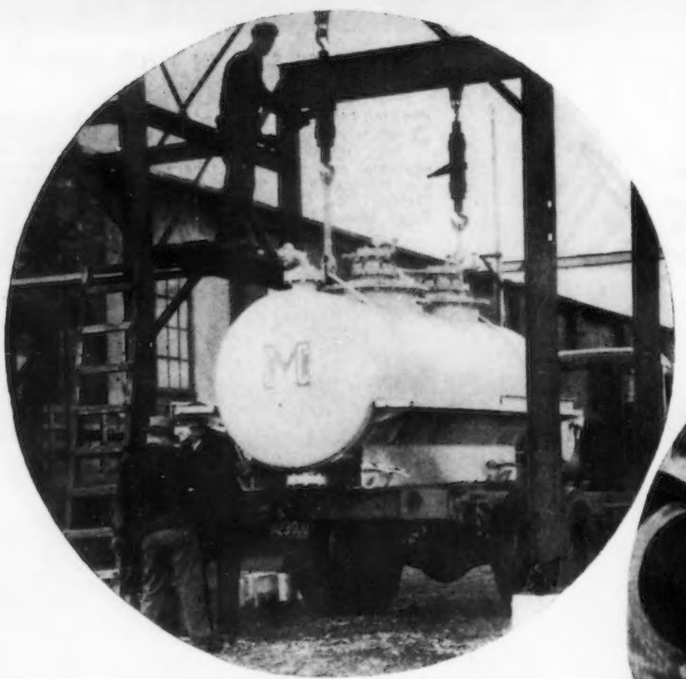
FOR GAS HOLDER

weight, serves as the bottom plate for a 10,000,000-gal. gas holder being Motor Co.'s Rouge plant. It is said to be the first bottom plate of its size together. The gas holder will be completed late this year and will tower 35-story building.

New and Varied Uses for Steel

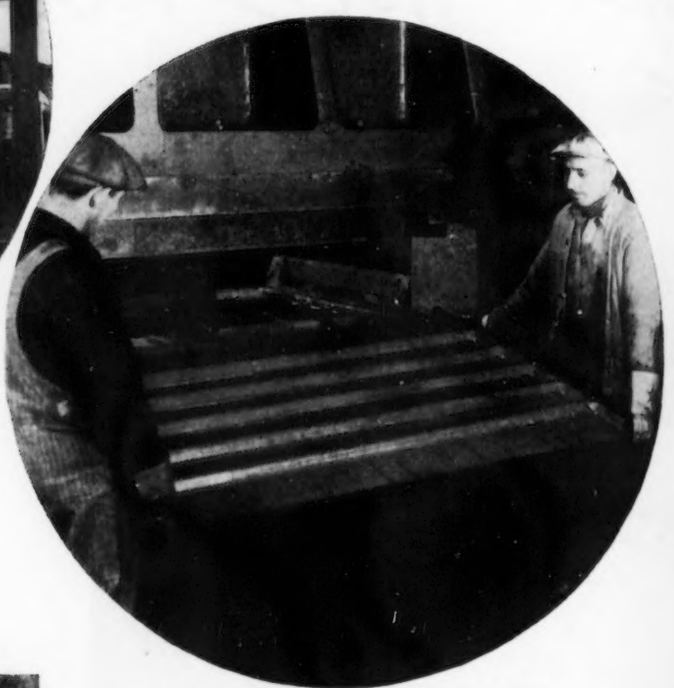
USE OF HIGH TENSILE STEEL FOR TANKS GROWING

HIGH tensile steels are coming into great favor for construction of truck tanks because of their saving in weight without sacrifice of strength and resistance to wear. Weight reduction ranges from 25 to 50 per cent as compared with ordinary carbon steels. The truck tank illustrated was fabricated from Youngstown Sheet & Tube Co.'s Yoloy, a nickel copper steel with high tensile properties by Steel Products Co., Savannah, Ga. In this instance a weight reduction of 750 lb. was accomplished in a 3250-gal., four-compartment drop tank. Tank is mounted on a special tandem trailer, also built by Steel Products Co.



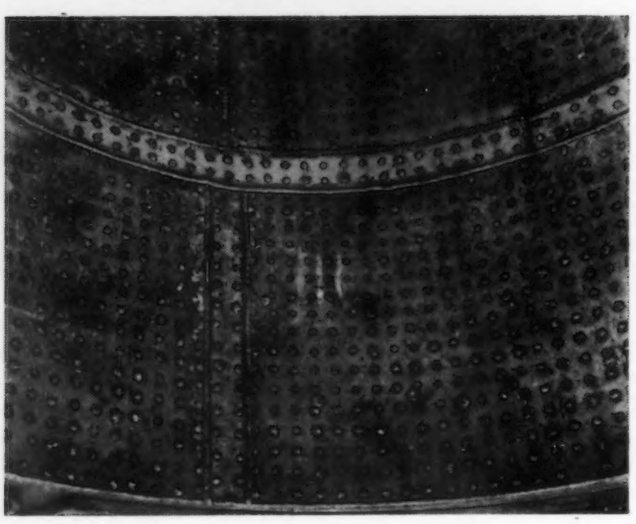
RUBBER LINED STEEL TANK FOR CARRYING ACIDS

THE Merrimac Chemical Co., Everett, Mass., uses three rubber-lined steel truck tanks to speed up deliveries of sodium hypochlorite and muriatic acid. The tank is filled while suspended from the loading platform, and is then lowered onto the truck chassis to form a complete truck unit. When the truck returns the empty tank is removed and a filled one quickly attached. This system greatly reduces loading time and enables efficient service with minimum trucking equipment. The lining was supplied by Goodrich Rubber Co.



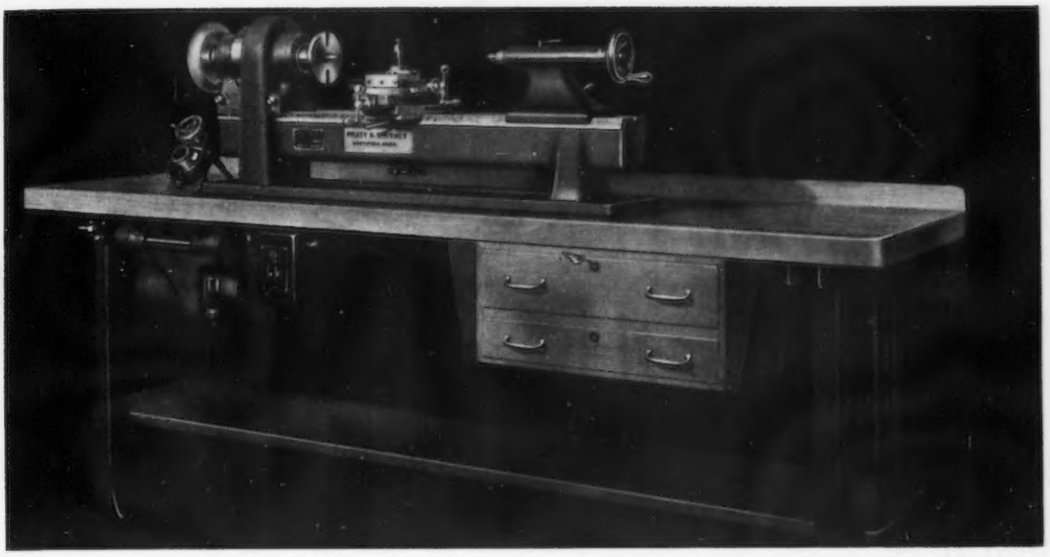
NICKEL COPPER SHEETS USED FOR CAR DOORS

DIFFICULTIES previously encountered in cold forming operations, which called for deep drawing steel, have been materially reduced in recent production of box car doors by Youngstown Steel Door Co., Youngstown. Youngstown Sheet & Tube Co.'s Yoloy, a nickel copper sheet steel, was used. A weight reduction of 150 lb. per door was achieved as compared with carbon steel of comparable strength. The fabricator found that door panels having a three-way draw at the end of each corrugation involved very little spring-back.



STAINLESS STEEL LINING FOR CRACKING PLANT

A PORTION of a stainless steel lining of a cracking plant dephlegmator, in which 30,000 holes were punched without a single leak, is shown here. To apply the lining holes 9/32 in. in diameter were punched 1½ in. apart in 1/16 in. stainless steel. These holes were then welded up inside the dephlegmator with a special 18-8 stainless steel arc welding electrode. Welding was done by La Consolidada, S. A., Mexico, D.F., with the use of Lincoln welding machines.



Pratt & Whitney Announces a New 10 in. x 20 in. Bench Lathe

PRATT & WHITNEY DIVISION of Niles-Bement-Pond Co., Hartford, Conn., announce a new 10 in. x 20 in. bench lathe, with a New Departure Transitorq drive. The machine is intended for toolroom work of a precision nature and is heavy enough to retain its accuracy under severe use. It has a bed length of 44 in. with a 10-in. swing over the bed, a 6½-in. swing over the cross slide, and a maximum center distance of 20 in. The bed and the pan are cast in one piece with a cored hole through the headstock leg to admit the driving belts.

The headstock is of very heavy design and carries a headstock spindle 1 15/16 in. in diameter. The hole through the spindle is 1 5/16 in. in diameter providing for a 1-in. collet capacity. The headstock spindle is hardened, tempered and accurately ground, with the front end extremely hard to prevent the imbedding of chips and to insure permanent accuracy. The spindle is mounted in super-precision ball bearings pre-loaded to 75 lb. These headstock spindle bearings are packed in special grease and are permanently sealed.

Mounted on the headstock spindle, in addition to the belt sheave, is a drum used for stopping the spindle by hand or for revolving the spindle for inspecting work. This drum also contains four holes for engaging the lock pin for locking the spindle when tightening collets. The spring arrangement of the lock pin is such that the pin will slip out of engagement when the collet has been tightened, thereby eliminating the possibility of starting the lathe with the lock pin in position.

The lathe is driven by a New Departure Transitorq Type DT-¼, equipped with a ½ hp. 1800 r.p.m. motor. This equipment produces spindle speeds ranging from 200 to 2000 r.p.m. Power is transmitted from the Transitorq to the headstock spindle through four V belts. Belts can be changed without removing the headstock spindle.

The tailstock is also of heavy design and is mounted on the same ways as are the headstock and cross slide. The tailstock spindle is 1⅛ in. in diameter and is provided with a No. 2 Morse standard taper hole at the front end for holding centres, drill chucks, etc., in the conventional manner. It has also been provided with a tang driving and drift slot so that twist drills can be used to good advantage and with safety, as they cannot turn in the taper hole. On top of the spindle are graduations for convenience in drilling holes to predetermined depths. The total tailstock spindle travel is 3¼ in.

The compound slide rest is of an entirely new design. It can be clamped in any desired position on the bed and is provided with longitudinal and transverse slides for accurate turning and boring operations. Each slide has a travel of 5 in.

The longitudinal slide is mounted on a swivel base graduated through 60 deg. on each side of the center, and equipped with a vernier graduated to five min. for accurate setting.

The approximate net weight of the new bench lathe with regular equipment is 350 lb. It is available separately or mounted on a suitable bench.

IMPROVEMENTS IN PRODUCTION

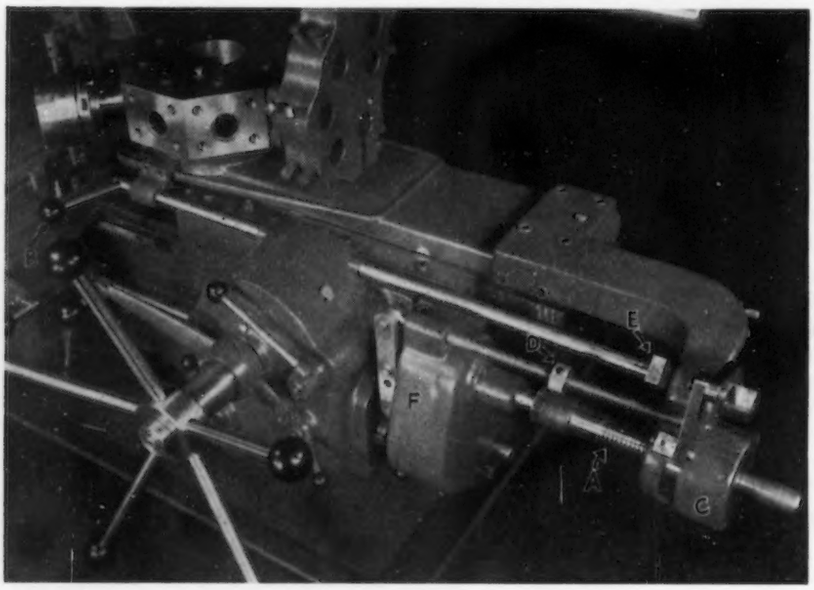
Turret Lathe Attachment for the Elimination of Drag in Threading

A THREADING attachment for ram-type turret lathes built by Gisholt Machine Co., Madison, Wis., involves mechanism by which a self-opening die is led on to work at a uniform rate, governed by a standard leader, A.

Downward pressure on a level, B, throws in feed travel through a half-nut within housing, C. Travel continues for a predetermined thread length as set by a collar, D, which is tripped by a dog, E. The die head itself is provided with an internal opening trip. At the completion of threading and after the die is open, the lever, B, is hand lifted, raising the half-nut within C, and throwing out a feed clutch within the housing, F. The operator then runs the turret back with the capstan wheel.

Proper setting of the collar, D, is obtained by measuring from the turret face, at contact position, to the end of threaded portion of work piece and setting the collar at that distance on its threaded rod.

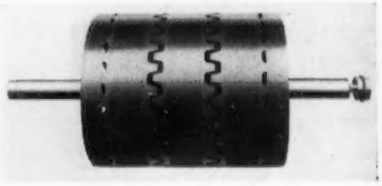
Through elimination of drag on threads, as thus provided for, a marked accuracy of all threaded work is said to be obtained. By use of a selective gear box, coupled to the feed shaft, one leader will serve to cut three threads having one, two and four times the pitch of the leader. Threading capacity is from four to 32 threads. Gear box speed selection permits the cutting of fine pitch threads with coarse pitch leaders, and makes available three ranges of eight feeds, 24 in all, from 0.001 in. to 0.004 in. Use of the attachment presents no interference to operations by turret tools.



THIS attachment is designed to eliminate any necessity for a thread-cutting tool to carry its own lead and to accomplish this without restricting the use of other turret-tool positions.

Magnetic Pulleys Have Improved Radiation

THE Dings Magnetic Separator Co., Milwaukee, announces a new design magnetic pulley which features an increased radiating surface. Horizontal and radial ducts for air currents present



ribbed flanges for dissipating generated heat. Corrugated radial openings are centrally located in each magnetic pole; bronze spacer rings bridge the gap between poles. It is claimed there is a 20 per cent greater magnetic pull through this design construction.

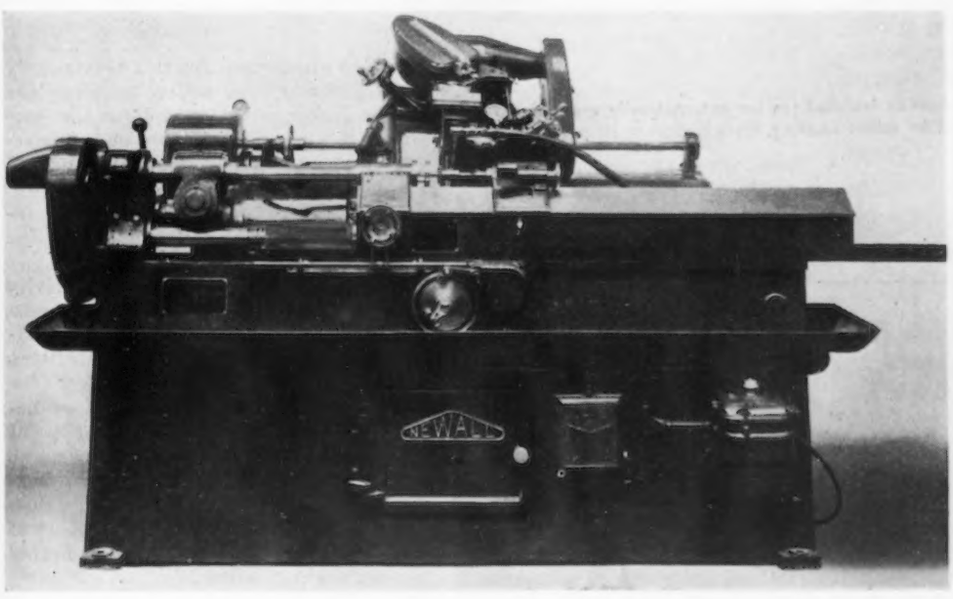
Adapter-Holder Sets For End Mills

THE Weldon Tool Co., Cleveland, has brought out a new line of end-mill and shell end-mill holders with adapters. Through the use of removable holders a single adapter serves for a wide range of shell end, single end, and double end-mills, by changing the holder element of the combination. Holders are interchangeable with each other on any of the adapters. The adapter elements are made in all standard tapers, and are hardened and ground.

AND SHOP EQUIPMENT...

High-Speed Precision Thread Grinder Features Truing Device Control

REED-PRENTICE CORP., Worcester, Mass., has announced the Newall automatic universal thread grinder adapted to precision thread grinding on taps, gages, dies, chasers, bolts and like parts. Pitch error is specified as controllable to within 0.0001 in. Grinding procedure is through a series of light cuts at high speeds, using, for example, a single ribbed wheel on thread gages. Cam provision is available for grinding relief on taps and for relieving straight and spiral flutes of any member. A patented diamond truing device is provided with direct and positive control through an enlarged thread form operating on the pantograph principle. A projector is used to obtain an enlarged profile of the diamond from which the stylus is made. Right or left hand threads are obtained from a lead screw and change wheels. The screw is 2 in. in diameter, with hardened and ground thread. Accuracy of mounting, supplemented by a pitch-correcting device, is credited with resultant accuracies said to be within one ten-thousandth of an inch. Division for multi-thread work or annular grooves is obtained by a ground worm actuating on accurately cut worm wheel. The wheel-head is driven by an incorporated a.c. two-speed motor. The hardened and lapped spindle runs in parallel adjustable white metal bearings. Lapped thrust plates, likewise running in white metal bearings, are integral with the spindle. Twelve work speeds are obtained from compounded belt cones; a back gear can be utilized to double the number of speeds. Automatic high speed reverse is independent of cutting speed. Traverse is through hydraulically actuated clutches. A helix angle of 15 deg. is obtained right or left hand by swiveling the wheel head slide, motor and dresser in a cradle by means of a graduated dial. The equipment is built in two sizes.



Machine for Testing Stability of Greases

A NEW device for determining the mechanical stability of heavy lubricants is now made available by the Taft-Pierce Mfg. Co., Woonsocket, R. I. The unit is equipped with a constant speed 3450 r.p.m. motor, on the spindle extension of which is mounted a plate-shielded, size 204 S.A.E. bearing. The bearing is mounted in a grease cup which is free to turn, and the grease is brought to a predetermined temperature which is recorded by a dial thermometer. The device works on a definite amount of grease in a moderate-sized bearing, running at a medium speed of various test temperatures. While lubricating value is not given, definite information is given on starting and running torque, oil separation, change in structure and consistency, channeling, leakage past bearing seals, aeration and the subsequent changes in grease volume. Accessories consist of a measuring cup, melting-point apparatus, and the BEC Penetrometer.

Radiator Tubing Cold Formed at Rapid Rate

LOCKSEAM radiator tubing ½-in. high and 0.093-in. thick is formed from 0.006-0.008 in. copper ribbon at the rate of 300 ft. per min. on the equipment here shown. Built by Kane & Roach, Inc., Syracuse, N. Y., this equipment comprises a No. 000X cold roll former, outboard-bearing type, and a No. 3 flying saw. When installed a tinning machine was located between them. After being formed, the tubing receives a 0.001 to 0.00125-in. solder coating in the tinning machine, and is then sawed into 20 to 40 ft. or longer lengths. Subsequently, and in a separate operation, the tubing is cut into multiples.

The same company has also furnished one of its No. 00L cold roll formers, yoke type, a series L tinning machine, a "F.D." straightener and a rotary cut-off machine for the production of rectangular lockseam radiator tubes from brass strip stock 0.0075 in. gage, the tube being 0.531 in. high and 0.093 in. thick; also, a tube of the same outside dimensions but from 0.0095-in. gage stock, and a round lockseam overflow tube, 0.315 in. O.D. from brass strip 0.015-in. thick. Production is 110 ft. per min., the tube passing from the forming machine through the tinning equipment where it is solder coated 0.001 to 0.00125 in., after which it goes through the straightening unit and then into the rotary saw where the rectangular tubes are cut into 20⅞-in. lengths. Electrical equipment is wired so that should any motor in the series fail from overload, etc., the entire electrical equipment is cut off.

Acid-Proof Sulphur Cements

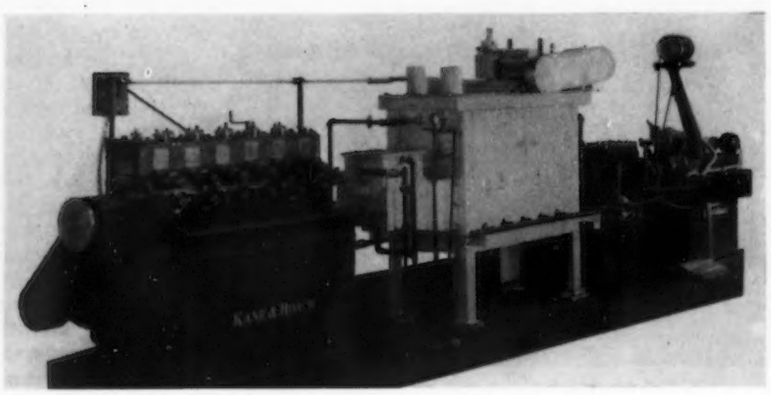
A NUMBER of uses for new sulphur cements have been developed through the use of Thiokol, a synthetic rubber product of the Thiokol Corp., Yardville, N. J. Development of the cements has been a result of research activities of the Texas Gulf Sulphur Co., at Mellon Institute of Industrial Research. Uses are in the construction of acid-proof masonry linings for tanks and all-masonry containers for laying acid-proof floors; and an application in molten state which is allowed to solidify in providing acid-proof joints. The cements are manufactured by the Atlas Mineral Products Co., Merztown, Pa.

Full-Jewelled Precision Dial Indicator

FULL-JEWELLED, low-friction dial indicators designed to meet exceptional precision requirements have been announced by the Federal Products Corp., Providence, R. I. Unusually accurate indication of the size of the work under inspection is attributed to reduction of internal friction—extremely light and free action enabling the indicator point to follow the surface variations in and out precisely and quickly. Uniform and constant pressure — an important element in obtaining accurate inspection—is also attributed to the light but positive action.

The combination of sensitivity and constant, light pressure permits quick detection of out-of-roundness and other irregularities. There is less needle flicker because the indicator point does not "bounce." As the indicator point does not bounce off the corners, etc., irregular work such as hexagon shafts can be inspected quickly, the inspector rotating the pieces faster but still obtaining a highly accurate reading.

ABOVE and below are combination installations for automatically producing finished radiator tubes, treated to solder coating, from ribbon or strip stock.

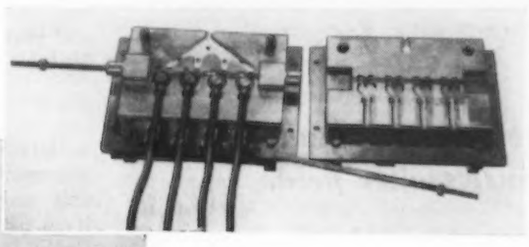


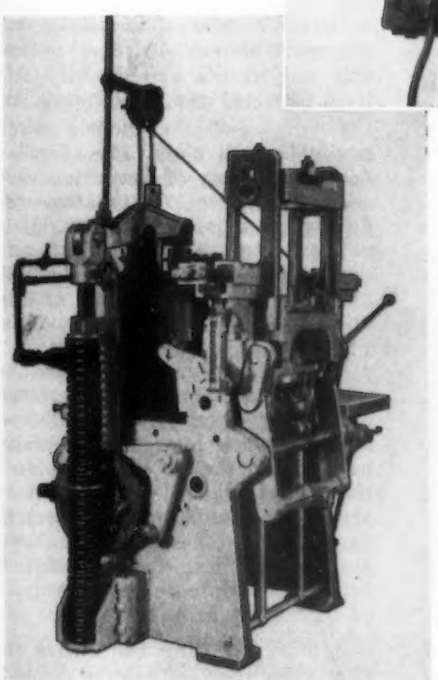
Improved Automatic Control Of Lathe Operations

AUTOMATIC control of lathe operations has been further facilitated on the Hydratrol lathe as manufactured by the Lehmann Machine Co., St. Louis, Mo. The lathe itself was described in THE IRON AGE, Aug. 22, 1935. Sixteen panels have been added to the speed indicating plate as standard equipment. From the speed plate, 16 spindle speeds are automatically affected through hydraulic medium in the operation of a three-lever handle on the headstock. Into the added panel pockets may be inserted numbered tags or symbols for work operations, which work operations are coordinated with changes of a speed-changing valve at the time of insertion. It then remains only necessary for an operator to set the inserted numbers or symbols to a central indicator to gain predetermined spindle speeds for indicated operations.

Die Caster Generates Own Plunger Pressure

IN a new high-speed automatic die-casting machine, model B-3, by Kux-Lohner Machine Co., 2145 Lexington Street, Chicago, plunger pressure up to 1500 lb. per sq. in. is provided by means of a long helical compression spring mechanism as illustrated. Steel castings are employed in frame construction and





in all machine parts which are subjected to stresses. Alloy steel is employed in all parts subject to wear and shock. Heat-resisting alloys are used in metal pot, gooseneck, plunger and nozzle. Ejector pins are located in both the upper and lower die-holder members. Cores may be pulled from three sides of a die. Either single or multiple cavity dies may be used and machine adaptation also covers parts requiring long inserts. Specifications are: Vertical type construction—split sprue; die space between bars, 14 in.; die width up to 14 in.; metal per shot, lead base 5½ lb., zinc 3¾ lb.; pot capacity, lead base 450 lb., zinc 250 lb.; speed up to 10 shots per min. Direct connected, 1½-hp. motor is used. A four-cavity die is illustrated.

Motor Operation for Re-Cycling Device

A RE-CYCLING type timing device, by Struthers Dunn, Inc., Philadelphia, involves a synchronous motor driving cams through a train of gears. At the time the starting impulse is received, the motor starts and a solenoid is energized to operate a clutch which connects the cams to the motor. At the end of the cycle, the motor is de-energized by means of a contact on one of the cams, and the clutch holds the cams in position. When the solenoid is de-energized, the cams are returned to the starting position by means of a spring. The timing is adjustable over a wide range and practically any desired arrangement of load contacts may be had.

Battery Warning for Electric Trucks

A SMALL warning indicator, designed for mounting on industrial electric trucks in a position clearly visible to the operator in serving to notify him when batteries should be removed for recharging, is being marketed by the Electric Storage Battery Co., Philadelphia. Designated as Exide discharge indicator, the device is made in sizes for use with 12, 15, 16 and 18-cell batteries. Operation is simple: A relay is set to operate on a predetermined voltage; when a battery discharges to that point, the relay trips and the current flows to a red bulls-eye signal lamp.

Pencil-Type Electric Etching Equipment

A SMALL, hand-held electric etcher for materials of hardness equal to hardened steel or less, is announced by the Ideal Commutator Dresser Co., Sycamore, Ill. The device involves no auxiliary controls, rheostats or transformers, and operates from any 110-volt, 60-cycle, a. c. circuit. Pencil-like use adds to convenience.

THIS WEEK ON THE ASSEMBLY LINE

. . . Assemblies show drastic drop for week ending Aug. 15 owing to Ford's one-week shut-down.

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. . . Industrial employment in Detroit begins to sag as ten automobile plants are down for model change-over.

o o o

. . . Automobile Workers Union concentrates drive on tool and die shops.

o o o

. . . Pierce-Arrow and Hayes Body simultaneously announce entry into house trailer field.

DETROIT, AUG. 18.

AUTOMOTIVE assemblies for the week ending August 15 showed a sharp decline, since the Ford Motor Co. was down during the entire week. Ford resumed operations on Monday, however, on the final run for 1936 models. It is expected that Ford may run perhaps two and even three weeks longer on 1936 models although most of the other companies, with the exception of Plymouth, Dodge and Chevrolet, have ceased assembling 1936 cars. Chevrolet's motor shop is down although its assembly plants continue to operate on parts stock. Plymouth is expected to close down by the end of this week. In fact, during the past week, besides Ford Motor Co., there were ten automobile factories that were shut down for model change-over.

Ward's Automotive Reports estimates production of 55,329 cars and trucks for the week ending Aug. 15, as compared with 84,153 the week before and 60,470 a year ago. Of this drop of almost 30,000 units, Ford Motor Co.'s volume represents 24,000.

While we are talking about change-over periods and shutdowns for some plants yet to come, already more than one maker is in production on the new jobs. Both Packard and Studebaker have been running their machine shops since the first of the month and Buick will begin new model production on August 20. Many other plants will be in production by the first of September but schedules for that month obviously will be low. The new Chrysler DeSoto six-cylinder line, for example, will start out about Sept. 1, but only 1400 units are scheduled for that month. The Dodge truck engine is also to be run over the same line. It is expected that much of the steel bought in the previous week will have low volume releases for September but will begin to come in strong in the latter part of the month. During the past week, however, there was a noticeable lull in buying after the heavy splurge on the part of Fisher Body and Ford Motor Co. the week before.

Employment Sags

Detroit's index of industrial employment showed its first noticeable sag at the end of July and it is expected that the figure for the middle of the month, when available, will show even further decline as many of the automotive shops are down for change-over during the month of August. It is not expected, however, that any drastic low point will be reached, owing to the overlapping of announcements on the new models. Packard, for example, who employs a sizable number of men in the city of Detroit, has already started on its new program. The Detroit figure, of course, reflects activity not only in the automotive plants themselves but also in related body and parts plants, which reflect in turn activity of some of the outstate companies. General Motors employs many more people outside of Detroit than in.

Reports covering the entire industry for the 1936 season through

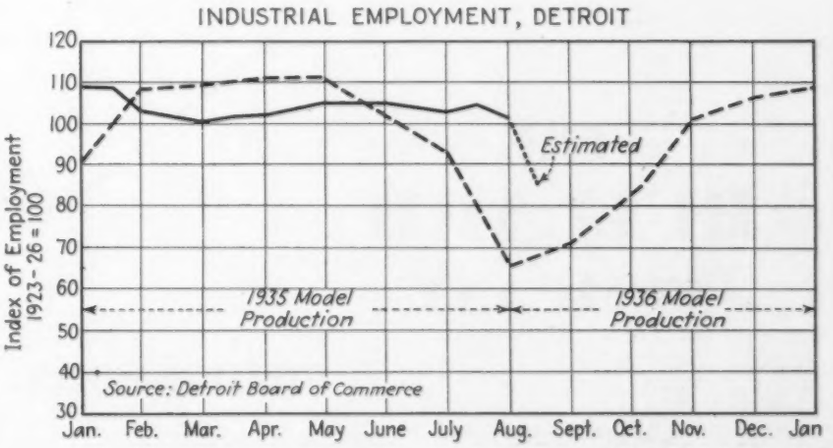
June show that during eight consecutive months the number of employees at work remained very steady, varying not more than six per cent during the period, or a total of 20,000 persons. This stability and continuity of employment exceeds any other record established by the industry throughout its entire history and it is hard to find a parallel in strictly comparable industrial operations. An increase in earnings of 16 per cent over the 1935 season is estimated and an improvement of 52 per cent over individual earnings in 1934. The average for all employees during April and May for this year was $32.00, as against a previous high of $35.00 per week in the spring of 1929, when the cost of living, however, was much higher. "Real" wages are about 5 per cent higher in 1936 than in 1929.

Despite the fine record of the industry, the United Automobile Workers' Union is out to convince the worker that he is still not getting a fair share of the fruits of the industry. While annual wages this year will run in the range of $1,500 to $2,000 per worker, officials of the union point out that Labor Department statistics show that a family needs an income of $2,000 to $2,500 a year in order to live at a minimum standard of health and decency. When questioned recently as to the objectives of the union, Homer Martin, president of the U.A.W., stated that the chief objective would be the establishment of the right of the workers to organize in a union free from the coercion of employers. He believes that there can be no true collective bargaining unless both groups have independence of action. What Martin visualizes is a strong industrial union covering the entire automotive industry that will act as the sole bargaining agents for the workers in dealing on a contract basis with the Automobile Manufacturers Assn. as a whole instead of with 28 individual members. This, in essence, means the establishment of the closed shop. And Martin would also include in this set-up the Ford Motor Co., which has hitherto prevented organized labor from getting even a foot in the doorway of the Rouge plant.

Organizing Drive Now On

Right now the drive is on to organize the tool and die makers while the season is at its peak, but it is only a selling campaign so far. Claims are made that some job shop workers have come over 100 per cent that were not heretofore organized by any group. The U.A.W. is taking advantage of the fact that there is a shortage of skilled men in the die shops to suggest that now is the time to ask for higher wages. In a pamphlet addressed to tool and die makers they point out that the die seasons are becoming shorter every year and that the skilled jobs are being made less complicated each year. The work is becoming highly specialized and larger numbers of semi-skilled workers are turning out the jobs. Since, as individuals, die makers have not been able to stop the "deterioration" of their jobs and conditions, it is pointedly suggested that they get together in one big union for collective bargaining with management.

As has been mentioned in these columns before, the plea is for unity and the drawing-in of independent labor groups. Three out of four of the Detroit locals of the M.E.S.A. have already amalgamated with the U.A.W., which is



out to get the only remaining local and to completely discredit the present national officers. In pointing out why there is strength in union the "sad" situation in the Motor Products strike is reviewed, when union fought union and brought defeat to the workers, also to the number of strikes lost by the M.E.S.A. in the last year or so at Michigan Stove Company, Burroughs Adding Machine and at Packard. It is quite obvious that Martin and his followers are thoroughly sold on the one big union idea as against a conglomeration of weak craft unions dealing with each plant on a different basis.

Oddly enough, in one of the tool and die shops where the drive is being concentrated, the accusation is made that the employer has reduced wages because of lack of organization and that it was only by the refusal of the night shift to work overtime without overtime pay that standard time and a half for overtime was allowed. At the very time these charges were being made by the U.A.W., competitive die shops were accusing the same company of paying too high wages with the idea of attracting away workers from the other plants. Obviously, in the face of a serious shortage of skilled workers, it would be almost suicidal for any shop to cut wages since they would be likely to lose their entire force overnight to competitive plants desperately seeking more men not only here, but all over the Middle West. The drive to organize these jobbing tool and die shops seems ill-timed since, although the season is at its peak, the decline will set in by September 1 and by October 1 a great deal of the die program for 1937 jobs will be over.

Martin, a former Baptist preacher, is somewhat of an idealist and appears thoroughly sincere in what he is trying to do, as has been conceded by a number of industrialists. Although the term "Communist" and "Racketeer" has been hurled at him, the impression is rather that he is a perfectly normal American citizen who is sincerely interested in increasing the earnings of workers in the automotive industry. He believes that it is highly important to educate workers as to the trades union movement so that they will not be susceptible to the arguments of cranks and Communists. He believes that public sentiment is favorable toward the union movement at this time. He claims to seek no fight with the automobile manufacturers, but wishes, as a non-employee of the industry, to speak independently for the large mass of workers in the industry. If there is trouble in the industry, he thinks that it will be the manufacturers who will start it.

New Seat Adjustment

A gentleman from Medina, N. Y., by the name of Legrand Whedon has been in Detroit the past few weeks with the object of selling to some large automotive producer a front-seat-adjusting device that appears to have great promise. Mr. Whedon has been working on this development for over four years and has improved it to the state where it is now made up of 14 stampings and pieces of tubing, whereas the original design called for 116. Automotive executives are showing a keen interest in the device and it is quite likely that it will appear in some of the 1938 models, if not in 1937. The seat adjusting device provides for elevation of the seat, independent forward and back motion in any position and an inclinable back that may be extended in the horizontal position to form a Pullman berth in conjunction with the back seat. With this arrangement, it is possible to take short persons and literally lift them right up under the steering wheel so that they can see the road without having to look through the spokes.

The elevation members consist on each side of two pressed steel channels connected by two parallel link arms. A heavy coil spring provides the upward motion and it is merely necessary for the driver to relieve his weight on the seat to have the seat follow him, when a locking member is released. A separate channel member engages the upper one and provides longitudinal motion in either direction. It is locked by a second lever. The back tilting device consists of a notched sector which is riveted to the flat end of the tubular seat frame. Arrangements have been made by a well-known stamping company to manufacture the device on fairly short notice. It will use for material hot

(CONCLUDED ON PAGE 67)

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A BUMPER that *is* a bumper, not a push bar. Tests show that the C-springs and flexible front bar with "free" ends of this "Safety Cushion" bumper actually absorb and dissipate a large percentage of shock before it gets to the frame.

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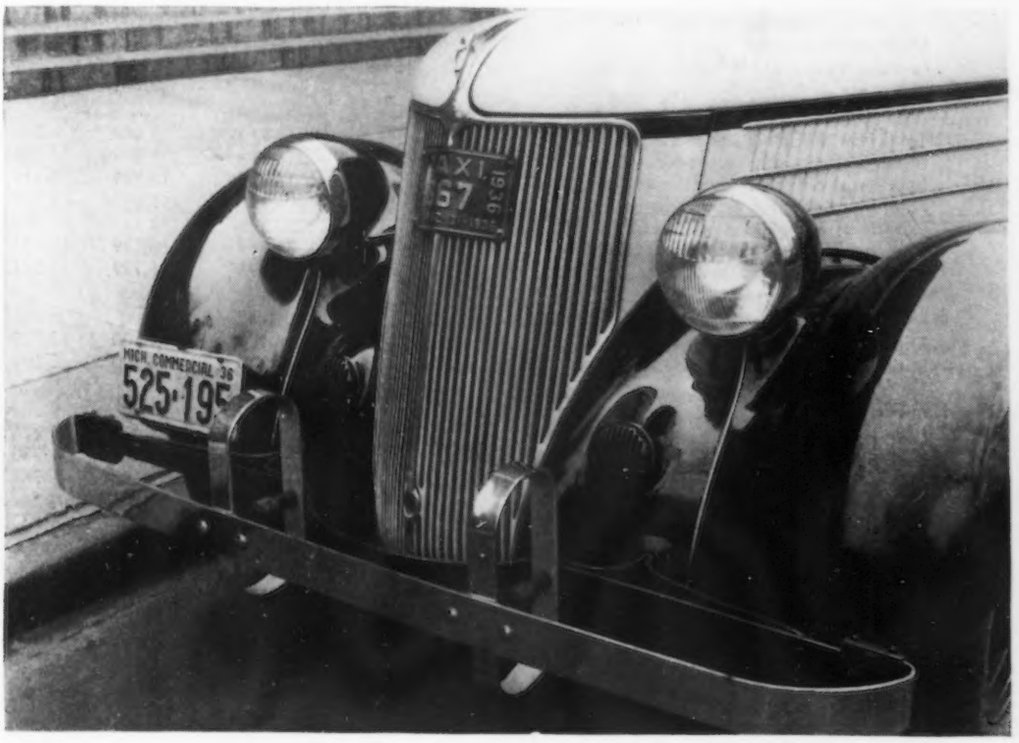


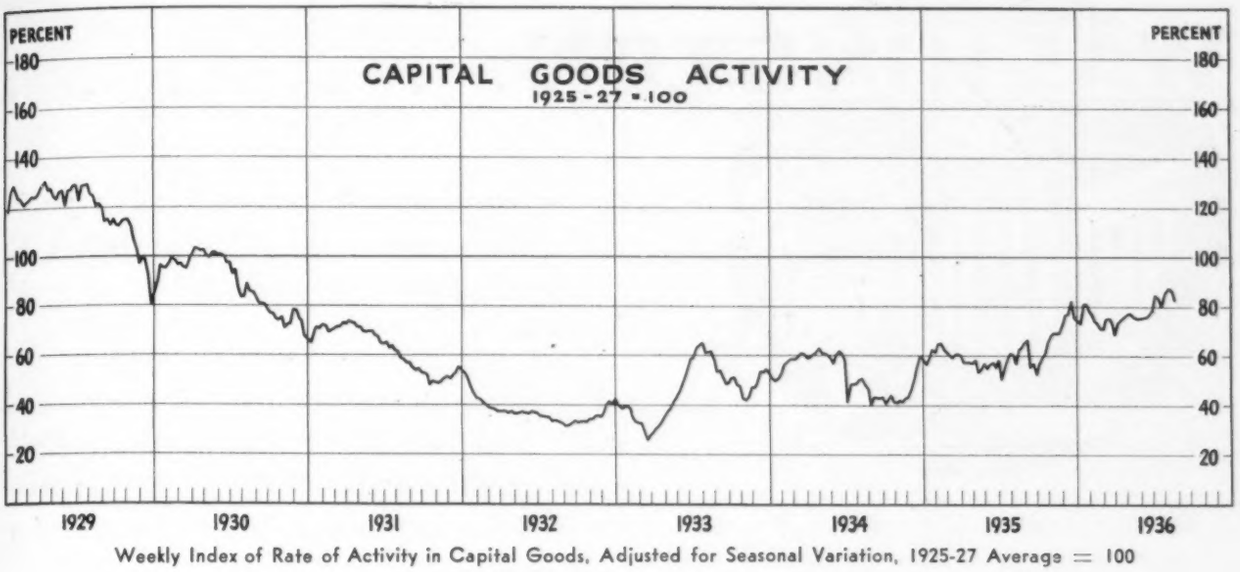
Current Metal Working Activity Statistically Shown

These Data Are Assembled by The Iron Age from Recognized Sources and Are Changed Regularly as More Recent Figures Are Made Available.

Raw Materials:	July, 1936	June, 1936	July, 1935	Seven Months, 1935	Seven Months, 1936
Lake ore consumption (gross tons)[a]	.....	3,941,426	2,198,189	16,554,181	.....
Coke production (net tons)[b]	.....	.....	2,612,411	19,635,159	.....
Pig Iron:					
Pig iron output—monthly (gross tons)[c]	2,594,268	2,586,240	1,520,263	11,319,263	16,122,494
Pig iron output—daily (gross tons)[c]	83,686	86,208	49,041	53,393	75,690
Castings:					
Malleable castings—production (net tons)[d]	.....	43,766	28,915	260,812	.....
Malleable castings—orders (net tons)[d]	.....	42,848	25,526	245,754	.....
Steel castings—production (net tons)[d]	.....	70,323	31,125	212,050	.....
Steel castings—orders (net tons)[d]	.....	94,345	34,570	216,940	.....
Steel Ingots:					
Steel ingot production—monthly (gross tons)[e]	3,922,731	3,984,845	2,267,827	18,310,478	25,249,066
Steel ingot production—daily (gross tons)[e]	150,874	153,263	87,224	101,163	138,731
Steel ingot production—per cent of capacity[e]	68.74	69.83	39.40	45.70	63.21
Finished Steel:					
Trackwork shipments (net tons)[e]	5,916	6,507	4,054	25,629	40,508
Steel rail orders (gross tons)[e]	56,880	13,200	32,700	307,757	653,228
Sheet steel sales (net tons)[f]	.....	261,439	206,313	1,351,298	.....
Sheet steel production (net tons)[f]	.....	210,448	145,505	1,371,398	.....
Fabricated shape orders (net tons)[g]	.....	128,520	65,957	584,947	.....
Fabricated shape shipments (net tons)[g]	.....	150,790	100,758	605,306	.....
Fabricated plate orders (net tons)[d]	.....	51,999	18,890	118,352	.....
Reinforcing bar awards (net tons)[e]	45,245	14,505	12,045	122,550	221,840
U. S. Steel Corpn. shipments (tons)[h]	950,851	886,065	547,794	4,101,793	5,982,201
Ohio River steel shipments (net tons)[f]	.....	109,455	77,464	486,112	.....
Fabricated Products:					
Automobile production, U. S. and Canada[k]	.....	470,887	350,054	2,723,227	.....
Construction contracts, 37 Eastern States[l]	$294,833,800	$233,054,600	$159,257,500	$855,764,300	$1,532,564,500
Steel barrel shipments (number)[d]	.....	702,132	555,649	3,588,613	.....
Steel furniture shipments (dollars)[d]	.....	$1,470,195	$1,224,722	$8,123,294	.....
Steel boiler orders (sq. ft.)[d]	.....	1,130,886	519,012	3,192,645	.....
Locomotive orders (number)[m]	9	24	5	21	131
Freight car orders (number)[m]	4,469	4,320	5,000	7,083	31,023
Machine tool index[n]	150.1	128.8	119.8	†94.7	†132.6
Foundry equipment index[o]	159.6	141.4	94.0	†98.3	155.4
Foreign Trade:					
Total iron and steel imports (gross tons)[p]	.....	59,910	31,894	214,785	.....
Imports of pig iron (gross tons)[p]	.....	16,793	5,519	59,005	.....
Imports of all rolled steel (gross tons)[p]	.....	15,715	18,719	111,691	.....
Total iron and steel exports (gross tons)[p]	.....	294,951	296,802	1,892,736	.....
Exports of all rolled steel (gross tons)[p]	.....	100,303	83,171	494,484	.....
Exports of finished steel (gross tons)[p]	.....	89,287	68,129	433,234	.....
Exports of scrap (gross tons)[p]	.....	186,696	205,779	1,321,721	.....
British Production:					
British pig iron production (gross tons)[r]	661,100	644,100	547,300	3,720,300	4,410,200
British steel ingot production (gross tons)[r]	974,100	965,900	803,300	5,604,500	6,718,300
Non-Ferrous Metals:					
Lead production (net tons)[s]	.....	38,818	34,424	226,903	.....
Lead shipments (net tons)[s]	.....	37,736	34,575	230,007	.....
Zinc production (net tons)[t]	45,553	44,947	35,120	244,996	309,285
Zinc shipments (net tons)[t]	41,891	41,654	32,306	247,278	294,378
Deliveries of tin (gross tons)[v]	7,120	7,795	5,290	33,680	44,140

† Three months' average.

Source of figures: [a] Lake Superior Iron Ore Association; [b] Bureau of Mines; [c] THE IRON AGE; [d] Bureau of the Census; [e] American Iron and Steel Institute; [f] National Association of Flat-Rolled Steel Manufacturers; [g] American Institute of Steel Construction; [h] United States Steel Corp.; [i] United States Engineer, Pittsburgh; [k] When preliminary, from Automobile Manufacturers Association—Final figures from Bureau of the Census; [l] F. W. Dodge Corp.; [m] *Railway Age;* [n] National Machine Tool Builders Association; [o] Foundry Equipment Manufacturers Association; [p] Department of Commerce; [r] British Iron and Steel Federation; [s] American Bureau of Metal Statistics; [t] American Zinc Institute, Inc.; [v] New York Commodities Exchange.



Weekly Index of Rate of Activity in Capital Goods, Adjusted for Seasonal Variation, 1925-27 Average = 100

Weekly Index Numbers of Capital Goods Activity

(1925-27 Average = 100)

Last week	82.2	Same week 1933	61.6
Preceding week	86.6	Same week 1932	33.7
Same week last month	79.9	Same week 1931	58.1
Same week 1935	62.4	Same week 1930	85.5
Same week 1934	48.7	Same week 1929	120.4

INDUSTRIES producing capital goods were less active last week than in the preceding week, and THE IRON AGE's seasonally adjusted index therefore declined. The loss, which was rather pronounced, involved 4.4 points, or from 86.6 to 82.2 per cent of the 1925-27 average. This compares with a peak for the year of 87.2 established three weeks ago, and with a higher rate in the previous week. Likewise, all but one week in July stood higher, though prior to that the weekly levels of activity were all lower. At the same time a year ago, the index stood at 62.4, approximately 25 per cent below its present level.

The drop beneath the previous week was due mainly to large-scale reductions in automotive manufacture, as more plants stopped their assembly lines against new model preparations. Output sank by about 25,000 units. Steel mill operations lost a point, and this was equal to the decrease in the adjusted steel index which is a component of the combined capital goods index. Lumber traffic showed a tendency to ease, but industrial production at Pittsburgh gained, as did the volume of heavy construction work in progress last week.

Components of The Index (1) Steel Ingot Production Rate, from THE IRON AGE; (2) Automobile Production, from Cram's Reports, Inc.; (3) Revenue Freight Carloadings of Forest Products, from Association of American Railroads; (4) Industrial Productive Activity in Pittsburgh District, from Bureau of Business Research of University of Pittsburgh; (5) Heavy Construction Contract Awards, from *Engineering News-Record*.

Steel Employment Highest in History

EMPLOYMENT in the country's steel mills this year has reached the highest level in the history of the industry, according to a statement by the American Iron and Steel Institute. In June, the total employment was 498,000 wage earners and salaried employees, an increase of over 6000 in a month and of 82,000 compared with one year ago. In no month for which there is any record has employment in the industry been larger.

Wage-earning employees numbered 451,000 during June, almost 8 per cent above the total for 1929. In June, operations in the industry were at only 70 per cent of capacity, while during eight months of 1929 steel operations exceeded 91 per cent of capacity.

The industry's payrolls in June also established a new high record with a total of $63,000,000. That was a gain of $20,000,000, or 47 per cent, compared with one year before. For the first six months of 1936 total payrolls of the steel industry amounted to $344,000,000 against $269,000,000 in the first six months of 1935.

Hourly rates of pay for wage earners during June rose to 66.9c. against 65.5c. one month before. Since June, 1933, wage rates have increased nearly 20c. an hour, or over 41 per cent.

During June, the number of hours worked per week was 40.8 and weekly earnings of steel wage earners averaged $27.30 compared with an average of $20.44 in June, 1935. The average weekly earnings for wage earners in the steel industry in June were 12½ per cent above the average for 25 major manufacturing industries, as computed by the National Industrial Conference Board.

WASHINGTON. . . . . .

. . . Green continues to berate Lewis's political affiliations as the CIO promises to "deliver" Pennsylvania's labor vote to Roosevelt.

o o o

. . . "Economic Royalists" owning railroad stock have repaid $395,000,000 to Railroad Credit Corp., RFC and PWA; way opened for motor carriers to borrow for new equipment.

o o o

. . . Patman-Robinson Act headed for court siege; new book analyzes it as the "most drastic industrial legislation in years."

o o o

By L. W. MOFFETT
Resident Washington Editor, The Iron Age

o o o

WASHINGTON, Aug. 18.—The cleavage in the ranks of organized labor was further emphasized last week. Labor's "Non-Partisan" League, formally making known what was already known, announced that it is going to organize a Liberal (labor) party which will enter the 1940 national campaign. Simultaneously President William Green of the American Federation of Labor declared that the Federation would maintain its traditional policy of not committing itself to any party. The League leaders consist chiefly of members of the 10 rebellious unions, formed into the Committee for Industrial Organization, recently ousted by the A. F. of L.

Determination of the league to establish its own political party was set forth in resolutions at its meeting in Washington. While the union which George L. Berry heads, the International Printing Pressmen and Assistants' Union, is not one of the rebels, Major Berry is actively sympathetic with the CIO movement and is president of the League. He devotes more of his time to the political activity of the League than he does to his official job as coordinator for industry. In both capacities he is a New Deal and organized labor propagandist.

The League was organized for the immediate purpose of campaigning for the reelection of President Roosevelt. But its long range objective, as it made known in resolutions, is the setting up of its own organization "that has to do with the permanent establishment of a liberal party, if necessary, in the United States in 1940." The assumption is that if it finds the going so good as Major Berry so loudly proclaims the success of its initial movement, it will find the party is necessary. But Green officially sticks to the view that the American Federation of Labor is a much greater political force by fighting for issues rather than for parties or candidates. Personally, he has said that he will support Mr. Roosevelt, but that the federation as an organization is to continue to be non-partisan.

Green came near to getting into difficulties some time ago when he implied rather than stated that the Federation would support the New Deal. Manifestly neither Green nor any one else could commit the Federation to a solid political alinement. Its membership never has voted as a unit. Like industrialists and citizens generally, it always has cast a divided vote. Colleagues of Green resented his inference of a committed Federation and he faced about when he was taken to task on the matter at Cleveland during the Republican convention.

His reiteration of the non-partisan position of the Federation at this time is looked upon as a dig at the CIO with which he is at war. And inasmuch as the CIO and the League are twins, a shaft directed at one is likewise directed at the other. John L. Lewis is credited with being the actual head of the League as well as of the CIO. Major Berry as president of the League is looked upon as Lewis's mouthpiece.

Strong Labor Party Unlikely

In any event the deep rift in the ranks of organized labor clearly shows that such a thing as a solid organized labor vote, though never an actual prospect, has become a much less reality. It has spurred the opposition of craft unionists to the CIO and the League and its strong political flavor is indicated by the use of the slogan that "A vote for Roosevelt is a vote for Lewis." For that matter the idea of a cohesive, powerful Liberal or Labor party, with Lewis as its likely head, in 1940, is also seriously questioned. Both the CIO and the League consist of heterogeneous groups. They represent political creeds of all kinds. It is difficult to imagine them banding together other than impermanently.

The New Deal-League-CIO affiliation is commonly accepted as only a temporary political expedi-

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NO CHANGE IN CHEMISTRY OR PHYSICAL PROPERTIES

ent. Visions of a Labor party taking over the New Deal and organized into a strong political entity for the 1940 campaign are plainly far-fetched. This is not to say that the affected labor groups do not and will not have substantial political strength. But there is every indication that it will not be the powerful force its proponents pretend to see for it. The break in organized labor ranks itself is one outstanding piece of evidence in this direction, to say nothing of the other dissident factors.

More Labor Legislation

However, the CIO-League is intensifying its political campaign for the New Deal. It has organized state leagues. Major Berry has exultingly declared that the leagues will organize "down to the last subdivision of the last Congressional district" and no doubt use will be made of the warm words of greeting given to the so-called Non-Partisan League by President Roosevelt at its conference in Washington last week. The President assured the League of "a common heritage of principle that we are bound, with millions of our fellow Americans, in a common determination to preserve human freedom and enlarge its sphere and to prevent forever a return to that despotism which comes from unlicensed power to control and manipulate the resources of the nation and the destiny of human lives." He did not make clear whether he proposes further labor legislation, if he is reelected, but he made a bid for the labor vote in an oblique swipe at the Supreme Court again when he declared that "It is a notable fact that it was not the wage earners who cheered when those (labor) laws were declared invalid" by the Supreme Court.

The meeting itself, however, made distinctly plain its purpose to push further labor legislation including the 30-hr. week, and to attempt to revive NRA or some other scheme to regiment industry. Sidney Hillman, Socialist, made this point especially evident, and it threaded its way all through the session.

Any doubt that may have existed that Lewis is engaged primarily in attempting to deliver Pennsylvania's labor—or as much of it as possible—to the New Deal was removed following the League meeting. Berry formally announced that the task has been assigned to Lewis. Perhaps the task was assigned by Lewis himself through Berry. The build-up obviously is through moves to organize the steel industry. While it is not thought the CIO actually thinks it will accomplish that job, it is evident that Lewis feels that whatever may be done in that direction will lend much force back of the effort to get the labor vote of Pennsylvania for the New Deal. The formidable obstacles faced by Lewis undoubtedly are realized by him, and one of them is the opposition he will meet from organized labor itself as the result of the split in its ranks. Lewis, however, is preparing to put himself in form for the work. He has sailed to England to join his family and presumably will have enjoyed a much-needed rest upon his return to the United States on Sept. 3, ready to reengage in the political battle, and, incidentally, to resume charge of the so-called steel drive.

Railroads Repay Part of Huge Loans

Returning to the black side of the ledger, railroads are rapidly repaying Government loans. . . . and it is unfortunate that so many other borrowers, unlike the carriers, consider Government loans as handouts and, thanks to politics, are getting away with it. . . . In any case the "economic royalists" who hold railroad stock are paying debts owing to the Government. . . . J. J. Pelley, President of the Association of American Railroads, has announced that Government loans and loans by the Railroad Credit Corp., to the extent of nearly $216,000,000, have been repaid. . . . Repayment of loans by the Reconstruction Finance Corp., principal lender to the carriers, has amounted to $155,292,399. . . .of this sum, $64,325,426 was repaid the first seven months of this year. . . . This was more than was repaid in any one of the preceding four years. . . . Outstanding RFC loans to railroads on Aug. 1 totaled $350,840,840. . . . Railroads have repaid part of the PWA loans for new equipment, new rail and new maintenance work. . . . The PWA has been repaid $23,643,000, leaving $176,886,500 outstanding.

The RFC has announced that it will consider applications for loans to motor carriers only for the purchase of new equipment, which is interesting in view of RFC's loans for such purpose to competing carriers. . . . but essentially necessary as a matter of fair play. . . . Among the requirements is that motor carrier loans "be so secured as reasonably to assure repayment and that the new equipment purchased be included in the collateral." . . . Motor carriers engaged in intra-urban business are ineligible for RFC loans. . . . The Federal Trade Commission has closed its case, without prejudice, against the Buff and Polishing Wheel Manufacturers' Association, New York, and its 32 member companies and one non-member company. . . . the complaint charged combination and agreement to suppress competition in the sale of buff and polishing wheels. . . the case was a flareback from the days of the dopey Blue Eagle. . . . it was charged practices authorized under the code had been

continued . . . but the FTC found no evidence that they had been followed since NRA was knocked out by a merciful Supreme Court.

Patman-Robinson Act Analyzed in New Book

The conference held last Thursday by food interests with staffs of the Federal Trade Commission and the Department of Justice on the Patman-Robinson act yielded only a modicum of valuable information. While some of the representatives of the food industry claimed the meeting was "very satisfactory" the desired purpose to get interpretations of provisions and definitions of terms of the complicated law was not accomplished. Rather it is understood that the group was advised that the FTC would adhere to its previously announced position of not giving out advance interpretations. A long list of questions was asked of the FTC and Department of Justice representatives but, other than getting pointers as to the position of the two government bodies, apparently nothing was learned.

In not giving out advance interpretations both the FTC and the Department of Justice are simply pursuing a traditional policy. And in view of the perplexities of the Patman-Robinson act there is generally a sympathetic understanding rather than criticism that it is proposed to pass upon its provisions only as they arise under individual cases.

Attorney Nelson B. Gaskill, prominent Washington lawyer and former member of the FTC, has written a 25,000-word analysis of the act and the book has just been published by the Kiplinger Washington Agency, Inc. By some it is contended that Colonel Gaskill has taken an extreme view of the implications of the act. He contends that the law is the most drastic in its widely extended effect on business practices of any industrial legislation in years. Whether or not Colonel Gaskill has construed the act too broadly or not, his book reflects a studied analysis that has been prepared impartially and impersonally. Te takes occasion to point out that it represents his own opinion only, that he had nothing to do with the law in any of its stages, that at present he has no interest in any way affected by the law and that "any one is privileged at will" to differ with him. This position of the author no doubt will give added weight to the analysis, even by those who disagree with him as to some of his interpretations, which are presented in clear and simple style. Differences among legal authorities over the act are widespread. And there are those in the steel industry who have studied the law who do not share Colonel Gaskill's opinion that the basing point system can be attacked under the law as a form of price discrimination. Instead it is argued that differences in net prices under the system are made only to meet competition in good faith and do not result in discrimination among competitors. These differences only give further indication that the law is a hodge-podge, contradictory, conflicting and ambiguous and that it undoubtedly faces a siege in the courts as to its constitutionality. Also that it in all probability will have to be rewritten largely or in part by Congress.

The strong implications attaching to the new law as seen by Colonel Gaskill are disclosed by his observation that "It is much easier to underestimate the seriousness of the questions of policy now confronting the business executive than to overestimate it."

L. R. SMITH, heretofore president of the A. O. Smith Corp., Milwaukee, has been elected chairman of the board. W. C. HEATH has been made president, and J. M. FLOYD, vice-president in charge of manufacture and engineering.

Mr. Heath, formerly with Fairbanks, Morse & Co., became vice-president in charge of manufacture and engineering in November, 1931. Mr. Floyd, who assumes Mr. Heath's former position as vice-president in charge of manufacture and engineering, has been connected with the Bendix Corp. for many years. He has been identified with the automotive industry for the past 25 years.

L. R. SMITH

W. C. HEATH

J. M. FLOYD

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FRANK J. LASKEY, formerly assistant general purchasing agent of the Republic Steel Corp., has been named general purchasing agent. He joined the Republic company at the time of the merger with Corrigan-McKinney Steel Co., where he was director of purchases. He held the same position with the Newton Steel Co. prior to its merger with Corrigan-McKinney. He has been in the purchasing departments of steel companies throughout his business life. Mr. Laskey will be succeeded by ROBERT E. SHERRATT as assistant general purchasing agent. Mr. Sherratt was formerly a buyer in Republic's purchasing department. He was identified with the Central Alloy Steel Corp. prior to its merger with the Republic company. He also served the purchasing departments of the Wheeling Steel Corp. and the LaBelle Iron Works.

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F. G. JACKSON, for the past 10 years district sales manager in the Philadelphia, Detroit and Chicago territories for the Kearney & Trecker Corp., has been made Chicago district representative, with offices in the Daily News Building, for the Eclipse Counterbore Co., Detroit.

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OWEN C. STEVENS, formerly identified with the R. K. LeBlond Machine Tool Co., has been added to the sales engineering staff of Stedfast & Roulston, Inc., Boston, to cover the Springfield, Mass., territory. LEE R. DAVIS is to take over the Connecticut territory.

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H. E. OBERG, heretofore manager of the machinery and contract forging divisions of the Billings & Spencer Co., Hartford, Conn., has been elected vice-president. He has been identified with the company for about 12 years, formerly as manager of the Detroit branch. C. D. ELLIOTT, who joined the Billings & Spencer Co. in April, has been made vice-president. He was formerly a consulting engineer with the George S. May Co. and since 1930 plant manager of the Wilcox & Crittenden Co., Middletown, Conn. WILLIAM A. PURTELL, president and general manager of the Holo-Krome Screw Co., Bristol, Conn., and CARL A. GRAY, vice-president and general manager of the Capewell Mfg. Co., have been elected directors.

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ROBERT W. MCCLURKIN, former manager of the Tonawanda Iron Corp., has been named president of the Matthiessen & Hegeler Zinc Co., La Salle, Ill. Mr. McClurkin, who is a member of the American Iron and Steel Institute, began his career as a chemist with the Andrews & Hitchcock Iron Co., later going with the Mayville, Wis., Iron Co., then to the old Republic Iron & Steel Co. at Youngstown, where he was superintendent of blast furnaces. He transferred to the United States Steel Corp. as superintendent of blast furnaces in Gary, Ind., and 13 years ago took over the direction of the American Radiator Co. subsidiary in North Tonawanda, N. Y., as manager.

Mr. McClurkin's place in North Tonawanda will be taken by CHARLES R. HOLZWORTH who was graduated from the school of mining and metallurgy of the Carnegie Institute of Technology, going thence to the plant of the St. Louis Coke & Iron Co., where he later became manager. His next position was as superintendent of blast furnaces of Pickands, Mather & Co., and then he went to Buffalo as vice-president and manager of the Rogers- Brown Iron Co. Recently Mr. Holzworth spent considerable time in Australia and New Zealand making a survey of the iron and steel industry for H. A. Brassert & Co., Ltd., of London.

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H. R. BELDING has been appointed assistant chief metallurgist in the Gary sheet and tin plate division of the Carnegie-Illinois Steel Corp. Two years ago Mr. Belding was transferred from the Vandergrift works to Gary. He has been associated with the United States Steel Corp. for more than 10 years.

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H. A. BERG, president of the Woodward Iron Co., and HERBERT P. LADDS, vice-president and general manager of the Lamson & Sessions Bolt Co., have been appointed chairmen of the industrial division of the Birmingham Community Chest campaign for this year.

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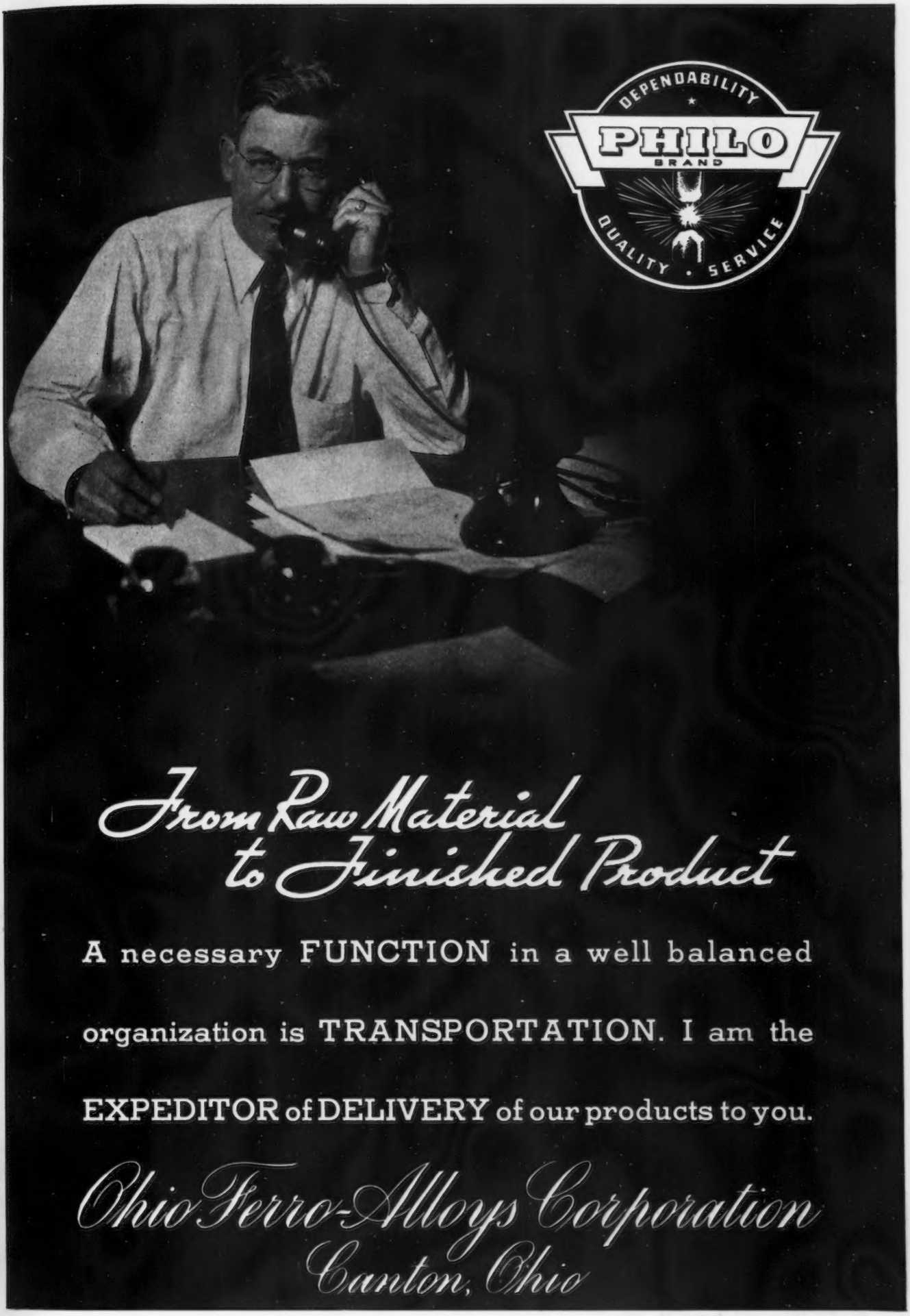
R. W. DAVIS, heretofore electrical engineer, Allis-Chalmers Mfg. Co., Milwaukee, has been appointed assistant manager of the electrical department. He has been identified with the company since his graduation from Massachusetts Institute of Technology in 1908. From



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1915 until the present time he has been engaged as sales engineer for the electrical department with particular reference to rolling mill applications.

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RALPH C. SMITH, for many years identified with the Chicago district office of the hoist and crane division of Robbins & Myers, Inc., Springfield, Ohio, has

R. C. SMITH

been appointed manager of hoist sales in the Chicago district. He will make his headquarters at Robbins & Myers, Inc., 2400 West Madison Street, Chicago.

S. J. STEELE, heretofore vice-president in charge of sales, and J. F. HARTLIEB, vice-president of the Continental Can Co., New York, have been made executive vice-presidents. F. J. O'BRIEN, formerly general manager of production, has been elected vice-president in charge of manufacture; F. GLADDEN SEARLE, formerly general sales manager, has been made vice-president in charge of sales. ARTHUR V. CRARY, of the general line sales department; J. S. SNELHAM, formerly comptroller; and M. S. HUFFMAN, a director of the company with headquarters on the Pacific Coast, have been elected vice-presidents.

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BERT L. WOOD, who resigned June 1 as New York manager of sales of Kalman Steel Corp., subsidiary of Bethlehem Steel Co., has joined the sales force of Carnegie-Illinois Steel Corp. in the New York district office.

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THOMAS CRUTHERS, assistant vice-president in charge of sales of the Worthington Pump & Machinery Corp., Harrison, N. J., has been appointed vice-president. His connection with the company dates from 1907, when he entered the employ of the Snow Steam Pump Works, a Worthington subsidiary. The following year he was transferred to the Pittsburgh district sales office and subsequently to other sales offices until 1927, when he was appointed New York district sales manager. In 1930, he was made assistant general sales manager and two years later assistant vice-president in charge of sales. Mr. Cruthers is a graduate of Stevens Institute of Technology.

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E. L. WYMAN, formerly vice-president of Clayton Mark & Co., Chicago, has been elected to the

JAMES M. HILL, new vice-president and general manager of the Empire Sheet & Tin Plate Co., whose appointment was announced in these columns two weeks ago.

newly-created office of executive vice-president, and Clarence Mark has been elected to the newly-created office of chairman of the board. The office of president will remain vacant for the time being in memory of Clayton Mark who founded the company and held the office of president from its organization to the time of his death on July 7. Mr. Wyman has been associated with Clayton Mark & Co. since its inception and was associated with previous Mark enterprises for many years prior to that time.

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HOYLE JONES has been appointed manager of the Tulsa, Okla., district sales office of the Republic Steel Corp. A new man in the Republic organization, he has had long experience in the oil well supply field and previously was connected with the La Belle Iron Works, Steubenville, Ohio, now a unit of the Wheeling Steel Corp.

Cost of Complicated Pipe Casting

(CONCLUDED FROM PAGE 39)

then packed up flush with the joint line, a ridge of vent coke laid from end to end, and sand banked over the coke and swept to shape as when forming the lower half. Strickling completed, the frame was removed, and the core checked as to correct diameter by means of a wooden caliper gage. The whole surface was then black-washed, before the second night's drying to complete the process.

Pattern Halves Doweled Together

To simplify matters when molding the pipe, two halves of a lagged up skeleton pattern were dowel pinned together; the coreprints and flanges were made full, and the lagging blocks—placed reasonably close together to prevent springing—were covered with thin sheet metal bent to the contours of the pipe's outside diameter. This skeleton design, in the case of an order for a single casting of unusual shape, is economical as to time and material, and has the advantage of flexibility, as the lagging blocks and sheet metal covering may be easily taken apart and reconstructed in different design when necessary.

The lower half of the pattern was bedded into a pit roughly conforming to its shape, rammed up to the joint line, and a parting made ready for the upper half pattern and the special box fitted to hold that section of the mold. As the view of the assembled mold, in Fig. 5, indicates, the cope flask sides were made of plates (cast open-sand) with a joint line following approximately that of the pattern. The same pair of end plates were used for all of the varying sizes, and three differently pitched sets of side plates (or six in all), were found sufficient to cover a wide range. The expense of their separation and reassembly to suit varying shapes was easily compensated for by the saving effected in actual molding cost, as compared with the intricate work necessary if the pipe had been made in a straight jointed flask.

Molds of Green-Sand Type

The molds were of usual green-sand type, gated along the joint

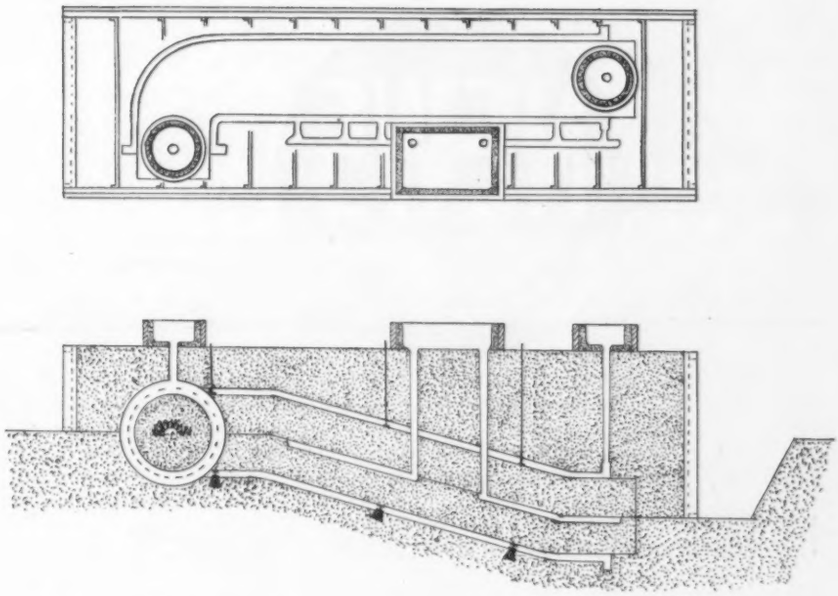
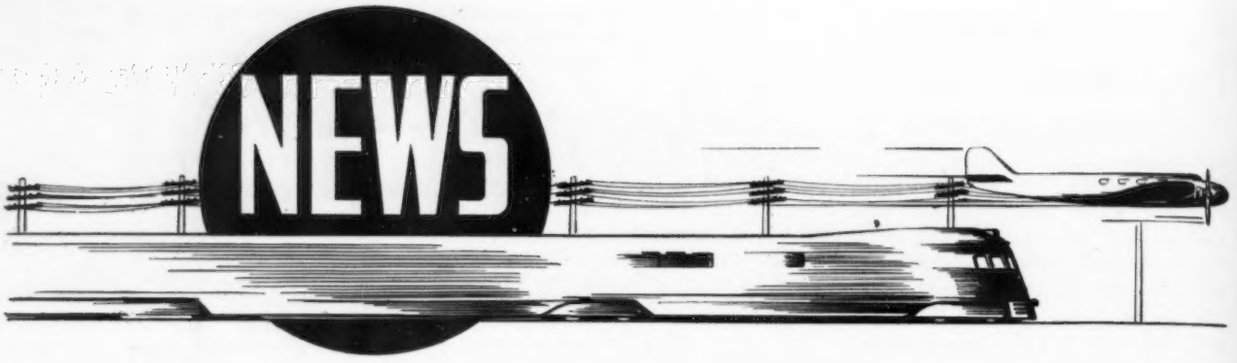


FIG. 5—Assembled mold in plan and section, showing gating, risers and chaplet arrangement.

as shown, with upper and lower chaplets to secure the core in size and number as found necessary. Usually three upper and three lower chaplets were used on a pipe of this length, particular attention being given to the position of those at the shoulder of the 90-deg. turn.

The pattern shop cost, by the method above outlined, was approximately half that estimated for the provision of a full pattern and pair of intricate-jointed core-boxes. The coremaking, thus simplified, was lowered to about one-third of the estimate; while the actual molding figures were brought into line—regarding the casting as an independent unit—with the average cost per pound of the bulk of the work in the foundry.



Half-Yearly Pig Iron Production In Substantially Greater Volume

TOTAL production of pig iron and ferroalloys in the first six months of 1936 exceeded the first half of 1935 by 3,784,443 gross tons, a gain of 38 per cent, according to statistics compiled by the American Iron and Steel Institute. The increase in basic iron was 2,597,379 tons, or 40 per cent, while Bessemer and low phosphorus grades rose 369,243 tons, or nearly 18 per cent. Foundry iron increased 358,183 tons, approximately 59 per cent, and malleable gained 289,956 tons, or about 54 per cent.

Output of ferroalloys rose from 257,790 tons to 384,347 tons, representing a 49 per cent increase of 126,557 tons. All grades of iron and alloys showed a larger output this year than last. Production figures are given in the accompanying table.

HALF-YEARLY PRODUCTION OF PIG IRON BY GRADES AND FERROALLOYS BY KINDS (Gross Tons)

	First 6 Months 1935	Second 6 Months 1935	First 6 Months 1936
Pig Iron:			
Basic	6,470,222	7,148,231	9,067,601
Bessemer and low phosphorus	2,078,825	2,159,867	2,448,248
Foundry	608,186	1,037,066	966,369
Malleable	539,069	666,675	829,025
Forge or mill	31	5,294	17,634
White and mottled, direct castings, etc.	13,566	53,728	38,908
Total	9,709,899	11,070,861	13,367,785
Ferroalloys:			
Ferromanganese and spiegeleisen	136,246	153,033	177,284
Ferro-silicon	102,639	160,223	178,847
Other ferroalloys	18,905	20,893	28,216
Total	257,790	334,149	384,347
Grand total	9,967,689	11,405,010	13,752,132

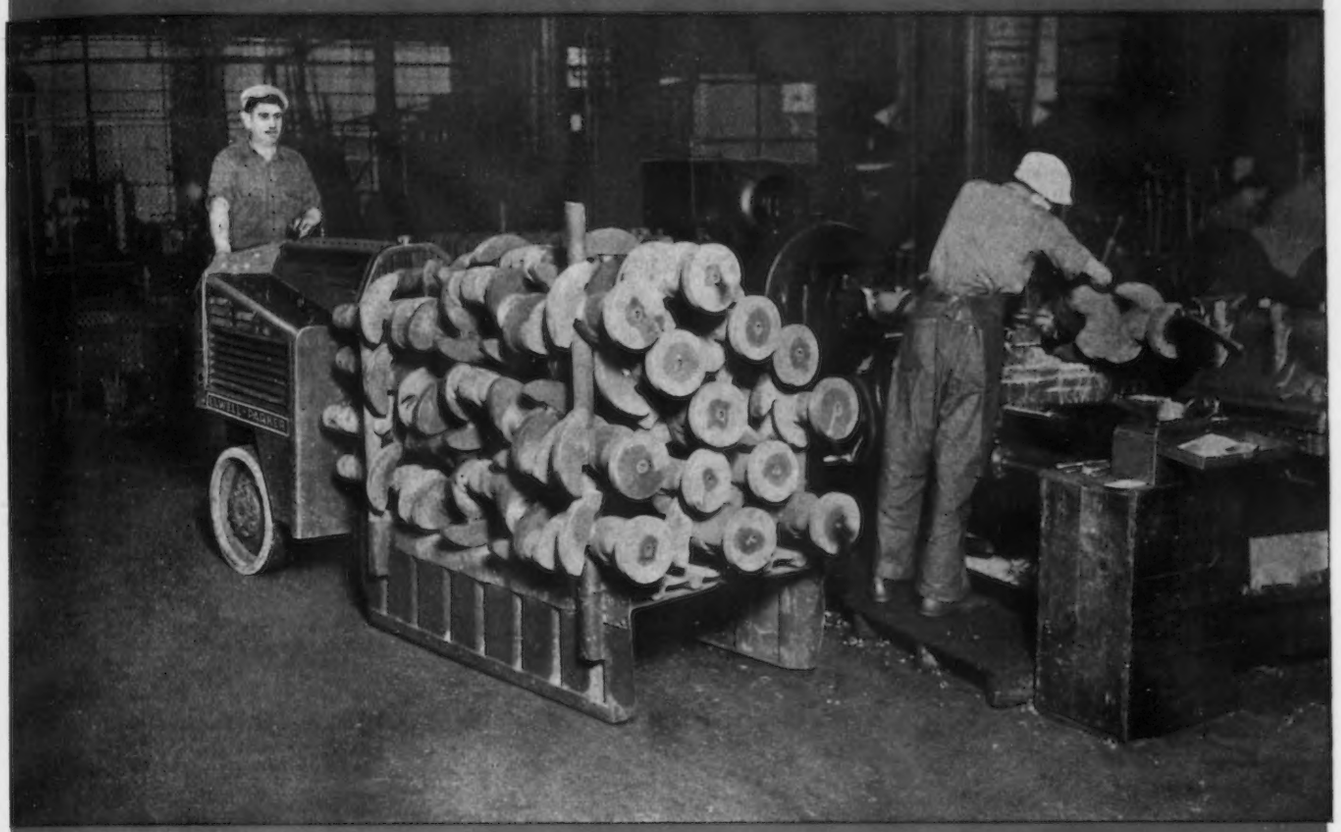
A.S.M.E. Meeting At Niagara Falls

TECHNICAL sessions devoted to power, transportation, fuels, hydraulics, wood industries and other subjects have been planned for the Niagara Falls meeting of the American Society of Mechanical Engineers to be held at the Hotel Niagara, Niagara Falls, N. Y., Sept. 16-19.

The opening day will include a

NEWS AND MARKET INDEX

"Bottlenecks" ARE TO BE OPENED UP, NOT TOLERATED



Elwell-Parker *Gas Power* Truck delivering load of unmachined crankshafts to lathe. Load is spotted at machine, leaving aisle clear. Net weight of load, 5200 lbs. The Ohio Crankshaft Co., Cleveland, Ohio, owner.

A "BOTTLENECK" is the place in a plant where the flow of goods in process slows down and piles up to no good purpose, while succeeding operations are "starved." Of course that means unreasonably high costs.

You are looking down an aisle crowded with heavy traffic both ways, which *might* be a "bottleneck" but *isn't!*

Even with the heaviest loads to be transported from storage to machines to shipping department, an Elwell-Parker Gas Truck keeps passageways clear 24 hours a day.

"Bottlenecks" are *costly*—usually *preventable.* Right now, when thousands of plants are at their busiest and profits *should* be the largest in years, there is danger that such slowing down may seriously curtail net earnings.

Are *you* harboring "bottlenecks"—those chiselers of the profits that belong to you? Widely-experienced Elwell-Parker Engineers can show you how to open them up with Truck, Tractor or Crane, *without changing your plant layout.*

Gas, Gas-Electric or Electric power is optional with Elwell-Parker Trucks. The Elwell-Parker Electric Company, 4225 St. Clair Avenue, Cleveland, Ohio.

New Type ELWELL·PARKER *Trucks*

ESTABLISHED 1893 • BUILDING POWER INDUSTRIAL TRUCKS SINCE 1906

special inspection trip to the General Electric Co. plant at Schenectady, N. Y., and a series of short talks on technical developments. Inspection of the factory will include visits to the House of Magic and special exhibits. Among the operations that can be seen are the manufacture of hermetically-sealed refrigerators; building of large water wheel generators and large motors for industrial application, including stereopticon views which enable the observer to perceive the flaws within the steel and their exact location; inspection of large turbine generators in process of construction and assembly, and a trip through the out-of-door mercury steam and electrical generator plant.

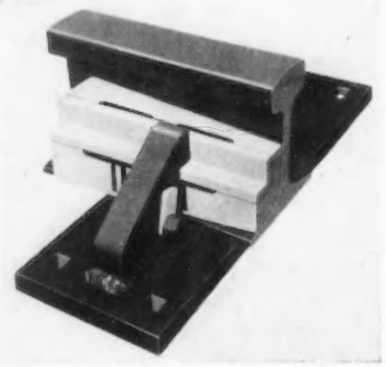
The program at Niagara Falls will commence on Thursday at the headquarters at the Hotel Niagara.

Harrisburg Steel Corp., Harrisburg, Pa., has adopted a double coverage group insurance program providing more than 900 employees with approximately $1,000,000 life insurance, supplemented by sickness and accident benefits. Announcement of the plan was made by Wilbert Wear, president and treasurer. The insurance is being underwritten by the Metropolitan Life Insurance Co. on a cooperative basis whereby the employer and employees share the cost.

Bethlehem's New Spring Rail Brace

AN adjustable rail brace which provides resiliency for full recovery from side thrusts, and conforms to A.R.E.A. Standard Plan No. 240 (Par. 1) has been developed by Bethlehem Steel Co., Bethlehem, Pa.

This new device, designated "Bethlehem Spring Rail Brace—Design 811," has a specially shaped wedge for one of its two principal members. An angular spring-steel piece is welded to this wedge which will withstand, it is claimed, a compression force of at least 12,000 lb. before it is brought to a close against the stop.



Bethlehem Spring Rail Brace, showing the pawl disengaged, with the wedge in place between the rail and the combined rolled-steel switch plate and brace.

The base consists of a rolled-steel switch plate onto which the bracing member is securely welded. The bearing face of this brace is machined so as to make an inclined contact with the wedge which when driven parallel to the rail compresses the spring against both web and flange. This resilient spring maintains constant pressure on the rail and thereby prevents track vibrations from loosening the wedge.

A pawl, attached to the brace, prevents backward movement of the wedge. Slots in the wedge permit 1/16 in. lock adjustments of the pawl as the wedge is advanced for a tight fit. Although initial spring compression practically eliminates any danger of the wedge becoming loose, the pawl and slot arrangement provides a positive lock against backward movement.

Improvements in Phos-Copper Alloy

IMPROVEMENTS and refinements in manufacturing Phos-Copper brazing alloy have been announced by the Westinghouse Electric & Mfg. Co., Pittsburgh. Increasing its field of application, the new processes include annealing and pickling to insure freedom of any carbonaceous deposit on the surface which might interfere with the production of leak proof joints. This makes the new alloy especially suitable for applications such as refrigerator parts where leak proof joints are a necessity.

An alloy of phosphorus and copper developed to replace expensive silver solders, Phos-Copper has a relatively low melting point, high tensile strength and excellent penetration. Some of its other desirable properties include absolute uniformity of alloy, self fluxing properties for most applications, high ductility, high fatigue resistance, high corrosion resistance, high electrical conductivity, high fluidity at brazing temperature, and economical to use. Also, brazed joints may be electroplated or tinned.

Phos-Copper is available in many sizes and shapes, including rod, ribbon, washers, strip, and other shapes. Standard rods are three feet in length with diameters as follows: 1/16 in., 3/32 in., ⅛ in., 3/16 in., ¼ in. Ribbon is .015 in. thick by 1.25 in. wide. Other

shapes for special applications are available.

It is applicable to all kinds of copper and copper alloy joints where strength, or gas and liquid tight joints are required, such as bus bar structures, copper tanks, cooling coils, electrical connections, radiators, refrigerators, terminal lugs, water heaters, copper piping, air conditioning systems, and copper smithing.

Phos-Copper is applied essentially the same as soft solders, except Phos-Copper requires a higher temperature. It melts at 707 deg. C., a temperature which can easily be obtained by an oxy-acetylene torch, incandescent brazing or carbon arc. High fluidity at brazing temperatures makes the alloy easy to use. At brazing temperatures it flows freely over the surface, facilitating the brazing of hard-to-get-at joints. It is self fluxing when used on ordinary copper work where it is not necessary to secure gas or liquid tight joints.

New Company Buys Old Tin Plate Mills

THE Marietta Sheet & Tin Plate Co., Marietta, Ohio, has been organized by Frank D. Sinclair, Marietta banker, A. H. Frank Haas, Marietta produce dealer, and C. L. Williams, an attorney of Steubenville, Ohio, and has purchased the tin plate plant of the Hudson Tin Plate Co. at Marietta, which has been idle for 10 years. The purchase price is reported to be $200,000. Stock in the amount of $600,000 will be issued. A third of the stock issue, Mr. Sinclair announced, would be purchased by workers in the plant, the remainder to be offered for public sale. Operations of the mill will be started in September.

American Rolling Mill Co.'s masonry department, Zanesville Ohio, has completed 10 years without a major accident. George Crow, superintendent, and his men have worked a total of 180,618 manhours to gain this distinction. Twenty-two other operating departments of the American Rolling Mill Co. have in past years reached the 10-year mark in safety, and all but five of these are continuing on with a clear record.

"Clinics" for Welding Non-Ferrous Alloys

LATEST developments in welding practise for non-ferrous alloys will be demonstrated at two "clinics" to be held in Cleveland and Buffalo in September. Included will be practical examples and demonstrations of the latest methods of electric and oxy-acetylene welding and brazing on Monel, aluminum, nickel copper, brass, bronze, Inconel, and nickel-clad steel.

The "clinic" at Cleveland will be conducted by welding engineers of International Nickel Co., Aluminum Company of America, and the Revere Copper & Brass Co. It will be held in the warehouse of Williams & Co., Inc., 1748-56 East 22nd Street, on Sept. 18 and 19.

At Buffalo, the clinic will be held on Sept. 25 and 26 in the warehouse of Whitehead Metal Prod-

ucts Co. of New York, Inc., 254 Court Street. It will be under the auspices of International Nickel Co., Aluminum Company of America, and American Brass Co.

Somewhat similar clinics have been planned for Montreal and Toronto in October.

Acquires Oxygen Machine Rights

RETURNING from a business trip to Germany, made to investigate a new type of machine for manufacturing oxygen, J. F. Lincoln, president and general manager, Lincoln Electric Co., Cleveland, announces completion of negotiations with the Messer Co., Frankfort on Main, for representation in the United States. The Messer Co. is designer and patentee of an automatic oxygen machine whereby users of oxygen for cutting and welding by the acetylene process can produce the oxygen in their own plant. Low first cost and economical operation in plants using as low as 500 cu. ft. of oxygen a day are emphasized.

The Lincoln company will handle all negotiations for use of any equipment sold or manufactured under the Messer patents in this country. A demonstration outfit will be installed in the plant of a large user of oxygen in Cleveland district.

A.S.M.E. Plans Welding Sessions

FOUR technical sessions devoted to welding will be sponsored by the American Society of Mechanical Engineers during the Metal Congress at the Hotel Cleveland, Cleveland, on Oct. 22 and 23. The two sessions scheduled for Oct. 22 will be held jointly with the American Welding Society.

The program of technical sessions follows:

THURSDAY, OCTOBER 22

Morning

Welding Design, by C. H. Jennings, Westinghouse Electric & Mfg. Co., East Pittsburgh.

Alloy Steels and Their Weldability, by A. B Kinzel, Union Carbide and Carbon Research Laboratories, New York.

Welding of Alloy Steels, by W. L. Warner, Watertown Arsenal, Watertown, Miss.

Afternoon

Rolled Steel in Machine Construction, by H. G. Marsh, Carnegie-Illinois Steel Corp., Pittsburgh.

Welding Heavy Machinery and Equipment, by C. A. Wills and F. L. Lindemuth, Wm. B. Pollock Co., Youngstown.

Discussions, by E. E. Tross, United Engineering and Foundry Co., Youngstown.

Modern Resistance Welding Developments, by A. E. Hackett, Thomson-Gibb Electric Welding Co., Detroit.

FRIDAY, OCTOBER 23

Morning

Application of Copper Alloy Welding, by I. T. Hook, American Brass Co., Ansonia, Conn.

Welding of Monel Metal and Pure Nickel, by F. A. Flocke, International Nickel Co., New York.

Welding the Aluminum Alloys, by G. O. Hoglund, Aluminum Co of America, New Kensington, Pa.

Afternoon

Magnuflux inspection of large welded vessels.

Radiographic Inspection of Welded Refinery Equipment and Steel Plate Construction, by H. R. Isenburger, St. John X-Ray Service, Long Island City, N. Y.

Casting or Welding in Machine Design, by J. L. Brown, Industrial Motor Department, Westinghouse Electric & Mfg. Co.

Acorn Iron & Supply Co., formerly of Atlantic City, N. J., has established its main office at Delaware Avenue and Poplar Street, Philadelphia, with branch office in the Humphrys Building, Atlantic City, together with a storage yard in Atlantic City and a branch warehouse in Downingtown, Pa. The company specializes in surplus stocks and dismantling work. It deals in second hand structural steel, pipe, boilers, ferrous and non-ferrous metals, machinery, contractors' supplies and equipment. It also maintains a fabricating shop for structural steel work and ornamental iron work. Samuel Tabas and his son, Charles L., are owners of the business.

Herberts Machinery Co., Ltd., 2929 Santa Fe Avenue, Los Angeles, has been appointed exclusive distributer in southern California and Arizona for the following machinery and tool manufacturers: American Tool Works Co., Cincinnati; Bardons & Oliver, Cleveland; Bryant Chucking Grinder Co., Springfield, Vt.; Chaso Tool Co., Inc., Royal Oak, Mich.; Ex-Cell-O Aircraft & Tool Corp., Detroit; General Machinery Co., Hamilton, Ohio; International Machine Tool Co., Indianapolis; Mattison Machine Works, Rockford, Ill.; National Broach & Machine Co., Detroit; Oster Williams Co., Cleveland; Racine Tool & Machine Co., Racine, Wis.; Reed-Prentice Corp., Worcester, Mass.; Sebastian Lathe Co., Covington, Ky.; Superior Machinery & Engineering Co., Detroit; Whitney Metal Tool Co., Rockford, Ill.

Aetna Steel Corp. has purchased the old Armstrong Spring plant in Flint, Mich., and will start operations within 30 days. This company, formerly known as the Aetna Steel Co., has just been reorganized under the new name. The new corporation will do steel warehousing and servicing, as well as deal in scrap iron. E. H. Kramer, formerly president of Aetna Steel Co., is actively interested in the new enterprise, although officers have not as yet been elected.

Lincoln Electric Co., Cleveland, has changed its San Francisco office from 894 Folsom Street to 866 Folsom Street, with a space increase of about 50 per cent. Sales office, display room and warehouse are combined in a 25 x 140 ft. portion of a new building which is conveniently located, near the San Francisco approach to the Bay Bridge. Personnel includes L. P. Henderson, manager, and S. H. Taylor, Jr., Ed. Weil, W. F. Fischer, E. B. Arrowsmith and R. D. Keener.

This Week on The Assembly Line

(CONCLUDED FROM PAGE 51)

rolled strip steel and seamless steel tubing. It bears the euphonious name of "Fitzhugh."

Pierce-Arrow Motor Corp. is the first automobile company to announce its entrance into the tourist trailer field. Pierce-Arrow's "Travelodges" have all-steel frames, independent wheel suspension, hydraulic brakes and shock absorbers as optional equipment. The chassis and body frame is built up of channel and box-section members welded throughout. Other frame members are U-beam type but all of them become box or tubular members when the outside paneling is riveted to them. The outside shell is made of 18-gage sheet aluminum which makes this the first house trailer to use aluminum sheets, although such material is very common on buses today.

Almost simultaneously comes the announcement that the Hayes Body Co. of Grand Rapids, for many years associated with the automotive industry, is to enter the trailer field about Sept. 1. This house trailer will also have a steel body frame and a steel chassis electrically welded. The lower half of the coach sides is of sheet steel.

And a New Bumper

The Safety Cushion Bumper & Manufacturing Co. of Detroit has recently gone into production on an unconventional type of bumper that seems to show great promise. Initial installation was on a fleet of taxicabs in the city. The bumper, which is shown in the photograph, appears to be two bumpers in one. Actually, the front bar, which is made of standard bumper stock running about .95 carbon, is mounted so that the ends are free to move in slotted malleable castings affixed to the secondary bar. This freedom of end motion adds a great deal to the flexibility of the front bar. In addition, there are two recoiling C-springs whose open ends are likewise contained in similar slotted castings affixed to the front bar so that in effect these C-springs become four cantilever springs which absorb a great deal of frontal impact. In addition, the back bar is so mounted that there is also further spring and give to it. Tests conducted in the engineering laboratory at the University of Detroit indicate that the bumper has the ability to absorb and dissipate a large percentage of the force of the shock instead of allowing it to pass directly through to the frame. Actual driving tests in taxi service show that the bumper will take a large amount of punishment without damage to the car. In the larger size the front bar is 4 x ¼ in. bumper steel and the rear bar is 2 x 5/16 in. Present production runs about 1000 units per week. While the unit costs considerably more than the standard single bar bumper, it is expected that its added safety features will stimulate sales to the point where production costs can be brought down and the market greatly widened.

To Rebuild Coke Ovens

THE Tennessee Coal, Iron & Railroad Co., Birmingham, will rebuild 73 coke ovens at a cost of $2,000,000.

. . . German pig iron production increases for first half of 1936.

o o

. . . Machinery activity up five per cent in June.

o o

. . . Export orders 40 per cent more than first six months of 1935.

GERMAN pig iron production in the first half of 1936 was 7,383,400 tons as compared with 5,603,366 tons for the same period last year. It is of interest that 87,228 tons of puddled iron was included in the total, since not a single ton was produced from 1930 to 1933. Production was started anew in 1934 and 108 stacks are now in blast.

By an agreement of the steel industry the amount of pig iron to be used for steel production will be advanced after Aug. 1 from 6½ per cent to 10 per cent which will lead to a further increase of pig iron demand and is meant to reduce imports of scrap still further.

The Polish steel consumption is one of the lowest in Europe. The 36,000,000 inhabitants of Poland consumed only 30,800 tons of steel in June of which 12,000 tons represented railway and government orders. The average consumption this year was 28,000 tons monthly. The consumption of steel by the 27,000,000 peasants living in Poland is only about five lb. per capita annually, while the consumption of agricultural machinery and implements is only 0.9 per cent of the consumption in neighboring Germany.

Prices for steel to Ireland were advanced from 2s 6d to 3s 9d per ton and prices for black sheets in all European export circles from 15s to 20s for all markets as a consequence of the Continental-British accord.

The German machinery industry which operated in May at about 74.5 per cent of capacity reports that in June production advanced far faster than previously and was 79 per cent at the end of the month. In the meantime the situation has further improved and a rise of 2½ points is expected at the end of July. Export orders increased the first half of this year by 40 per cent as compared with last year while domestic orders increased 10 per cent. From 1934 to 1935 the machinery industry was prospering from an inland boom while this year the improvement is due to export business.

Production of beryllium steel of which Germany is the only European maker is now at about 30 to 35 tons monthly. No export is permitted at present of beryllium as a raw product.

The total German iron ore production in the first half of 1936 reached 3,093,000 tons due to the combined efforts of the government and the industry to raise production of minor grade ores and find means and ways to use the ores for the production of iron. By the Treaty of Versailles Germany was deprived of her ore sources in Silesia and Lorraine while the ores elsewhere were considered to be unsuitable for smelting with but few exceptions. In the first half of 1932, total production was only 417,000 tons and in 1934, 1,295,447 tons.

Expectations that steel production would soon exceed the 1.6 million ton mark have been realized since in June, 1,630,839 tons of steel were produced as compared with 1,568,728 tons in May. Total production for the first half of 1936 was 9,299,793 tons as compared with 7,617,323 tons last year. Of this total 163,657 tons represented electric steel, which is the highest total ever recorded for a semester in this grade steel, exceeding even pre-war figures. The open hearth steel output was 5,002,058 tons basic and 84,816 tons acid steel. Production of Thomas steel was 3,779,702 tons and the remainder was steel castings. Production of black sheets which in May exceeded for the first time 100,000 tons has increased again, 108,000 tons being produced in June. The demand for galvanized sheets on the export market has been particularly heavy.

Shipment schedules for semi-finished and ship plates were extended 8 to 10 days for export while all other products were extended about one week. The German steel works practically have refused all speculative orders, which merchants have attempted to place, anticipating a general advance in quotations.

The decision handed down in the United States District Court, Pittsburgh, recently, approving the Pressed Steel Car Co.'s plan for reorganization, will be appealed by the committee for the protection of preferred stockholders. John F. Gilchrist, New York, chairman of the protesting group, has been granted permission by the court to take the case to a higher tribunal. Subsequent to Judge Gibson's decision on the reorganization, Pressed Steel Car Co., Inc., was formally organized July 28 as successor to the Pressed Steel Car Co., with Walter Bonitz elected president.

Carnegie-Illinois Workers Ask For $5 a Day Minimum Wage

PITTSBURGH, Aug. 18.—A conference of employee representatives of the Carnegie-Illinois Steel Corp.'s plants in the Pittsburgh-Youngstown district with the management, a series of meetings over the week-end held by the Steel Workers' Organizing Committee and the calling of a strike at a steel spring company's plant constitute the labor developments of the past week.

Late last week a conference was held between members of the various employee committees at the Carnegie-Illinois plants and company officials, at which the representatives asked for a flat increase of $1.12 a day, which, if granted, would boost the minimum pay in the mills to $5 a day. Another question brought up by the representatives was the formation of a central committee, which would be composed of the chairmen of the various individual plant committees. These two matters along with others of interest to both parties were discussed. No definite action was taken on the major subjects.

The by-laws of the various plant committees do not provide for a central committee and it was suggested at the conference that the representatives return to their respective committees where the proper procedure for the formation of such a central body could be discussed. Such an arrangement was set up some time ago by the various employee representation committees of the American Steel & Wire Co., and has been under discussion by the Carnegie-Illinois employees for several weeks.

Meanwhile, over the week-end the SWOC conducted a series of "pep" rallies throughout this district in connection with their drive for members. The main rally was held at Pittsburgh on the south side and attracted about 500 steel workers.

Approximately 200 of the Standard Steel Spring Co.'s 750 employees at two Coraopolis, Pa., plants are on strike in a dispute over union recognition, wages and hours. The main point of contention is the question of union recognition, which the workers claim was to be granted following a cessation of a two weeks' strike in July. Company officials, however, say that the agreement following this strike did not include union recognition.

Magnetic Separators For Fine Powders

FINELY divided iron is separated from enamel powders and other materials employed by ceramic industries by a new magnetic separator, the type CF, announced by the Dings Magnetic Separator Co., Milwaukee. The iron is arrested along the edges of the poles and is dislodged by a wiper which travels slowly across the face of the magnet. The magnetic pull is downward and discharged particles of iron find their way in to a screw conveyor and subsequent ejection at the side of the machine. A magnetically-operated tray feeder provides uniform feed through the magnetic zone. The amount of material fed is controlled by means of a rheostat inserted in the alternating current circuit which operates the feeder. Direct current is necessary for the magnets.

Light High-Speed Lathe Grinder

THE Dumore Co., Racine, Wis., announces a light weight, 10-lb. lathe grinder designated as No. 11. The new tool will swing a 2-in. straight wheel for external grinding jobs, and will grind holes ½ in. or larger to a depth of 2½ in. A ⅛-in. collet type chuck can be used for smaller hole diameters up to 1 in. of depth. The grinding wheel operates at 6000 r.p.m. for external, and 30,000 r.p.m. for internal grinding.

Purchasing Agents Survey Shows Some Building Up of Inventories

INCREASED prices and delayed deliveries, coupled with increased business, have caused buyers of iron and steel to increase inventories and commitments, according to results of a survey recently published by the iron and steel committee of the National Association of Purchasing Agents.

Stating that the "recent upswing in steel production would seem to be based on increased demand caused by these factors, plus any additional stocking-up caused by the labor situation," the report went on to say that the opinions received in the survey from purchasing agents referred for the most part "to the political situation and to its influence on the actions of labor leaders and of management.

"Opinions and policies are probably influenced by political sentiments, company labor policies, business conditions and location. Small, isolated mills in non-union districts may not be so easily subjected to labor difficulties as small mills in districts sympathetic to union organizations.

"The large producing units will make a determined effort to maintain production, and probably one of the large units in an important production center like Pittsburgh will be the spearhead of labor's attack, if its organization gains any strength. The automobile industry and other important consumers of steel are in their slack demand period, and that may be their reason for low inventories. Storing and rehandling charges quickly offset a few dollars a ton in price.

"These differences of location and of seasonal trends may account for the diversity of opinions and policies, and for the reports in some sections that the labor situation is serious, while in other territory the reports show no indication of that sentiment.

"The quantities and specifications used, methods and facilities for handling and storage must also be an important determining factor in inventory policy. A comparatively small user of standard sizes and grades can easily protect against any or all of the reasons given for increasing stocks. Users of special specifications may need most protection, for curtailment of production would make such special items difficult to get; the mills would prefer to work on standard tonnage."

Oil and Paste for Precision Grinding

A NEW grinding paste and a soluble grinding oil for precision and mirror finish grinding have been brought out by E. F. Houghton & Co., 240 West Somerset Street, Philadelphia. Advantages emphasized include prevention of rust, freedom from gumming or sludging, stability, sterility, and the ability to wet-out rapidly and penetrate to the point where work is being done. Chips are washed away quickly and will settle out immediately. These products are readily soluble in water.

Employees of the United States Steel Corp. and subsidiaries have been informed that the rate of 75c. per month for each thousand dollars' worth of group insurance will be reduced to 60c., effective Sept. 1, 1936.

A RECENT improvement on the Ohaus laboratory scale, manufactured by the Newark Scale Works, 10 Hobson Street, Newark, N.J., is a scale plate made of acid and alkali-resisting Durez plastic material. Molded in one piece by Shaw Insulator Co., with threads for attaching and with concave upper surface, the new scale plate is said to resist the action of drug and chemical products much better than any other non-brittle engineering material. It is also lighter in weight and can't dent or chip.

...OBITUARY...

WARREN M. FORDING, secretary to T. M. Girdler, chairman and president of Republic Steel Corp., Cleveland, was killed in an automobile accident near his home in Cleveland on Aug. 13. He had been secretary to Mr. Girdler since 1929. Before that he had been secretary to R. J. Wysor, now executive vice-president of Republic and then general manager of Jones & Laughlin Steel Corp. Mr. Fording received his formal schooling in Pittsburgh and upon graduation from high school went with the Diamond Coal & Coke Co. and later with the Colonial Supply Co. He became identified with the steel industry upon his return to civil life after the war, when he became secretary to the general superintendent of the Aliquippa works of the Jones & Laughlin company. Mr. Fording was 37 years old.

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WILLIAM H. NICHOLLS, president and founder of the William H. Nicholls Co., New York, manufacturer of foundry equipment, died Aug. 12 at North Country Community Hospital, Old Westbury, Long Island, at the age of 57.

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CHARLES S. CAWTHORNE, assistant treasurer of the American Steel & Wire Co., died after a long illness at his home at Lake Bluff, Ill., on Aug. 14, aged 62 years. He had been connected with the company since 1901.

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FRANK L. CONE, president of the Cone Automatic Machine Co., Windsor, Vt., died at his home in that city on Aug. 14, aged 67 years.

❖ ❖ ❖

S. J. GARDNER, founder and president of the S. J. Gardner Foundry & Machine Co., New Albany, Ind., died in that city on Aug. 11, aged 73 years. His son, E. Merwin Gardner, will continue the business.

❖ ❖ ❖

HARRY E. PIERCE, formerly vice-president of the Ewald Iron Co., Louisville, Ky., died in that city on Aug. 10, aged 63 years.

H. SANBORN SMITH, with the Gulf States Steel Co., Birmingham, for more than a quarter of a century, died Aug. 13 in Los Angeles, from injuries suffered in an automobile accident. He was one of the oldest steel wire men in the country. At one time he was vice-president in charge of sales for Gulf States Steel, later assistant to the president. In February of this year he retired from active business.

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ALFRED M. WOOD, general superintendent of Teleweld, Inc., Chicago, a welding supply concern, died of a heart attack on Aug. 11.

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ARTHUR N. BLANCHARD, who founded the Milwaukee Metal Working Co., Milwaukee, in 1901, and since that time served as president and treasurer, died on Aug. 11, aged 63 years.

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CARL F. ISSELMANN, vice-president and sales manager of the Aluminum Goods Mfg. Co., Manitowoc, Wis., died on Aug. 8, aged 47 years. He was born in Manitowoc in 1889 and began work with the company at 15 as a checker in the shipping department. Mr. Isselmann had suffered from a heart ailment for several months.

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JAMES H. BEEK, who for 15 years until his retirement last year was executive secretary of the National Industrial Traffic League, died Aug. 11 at St. Paul, Minn. Mr. Beek was born at Medinah, Ontario, 71 years ago. He was graduated from the law school of the University of Minnesota and for several years was traffic director of the St. Paul Chamber of Commerce.

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EDWIN EASTERBROOK, retired manager of Edgar T. Ward Sons & Co., South Boston, died at his home in Arlington, Mass., on Aug. 1, aged 63 years. He retired about 20 years ago.

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OLIVER H. MELLUM, assistant to the vice-president of the American Car &. Foundry Co., Chicago, was killed Aug. 14 when he was struck by a freight train at his home station, Lake Bluff, Ill.

..GREAT BRITAIN..

...Some British works too busy to close for holidays there.

o o o

...Cleveland foundry iron for export is limited.

o o o

...July pig iron production highest since 1930.

LONDON, Aug. 17 *(by cable)*—The Cleveland works are mostly too busy to stop for the holidays, although some rolling mills have closed.

Pig iron producers are not yet entirely able to overtake delivery arrears. Home consumers are now receiving adequate supplies of Cleveland foundry iron, but only a limited export surplus is available.

Some Midland furnaces, it is reported, have booked orders for the first quarter of 1937, but Cleveland iron masters are not disposed to follow suit due to an uncertain outlook.

Imports of foreign ore are less affected by Spanish troubles than it was originally feared.

The holiday influence is affecting the fresh demand for steel, but works are well booked, though the Scottish tube industry was adversely affected by foreign competition.

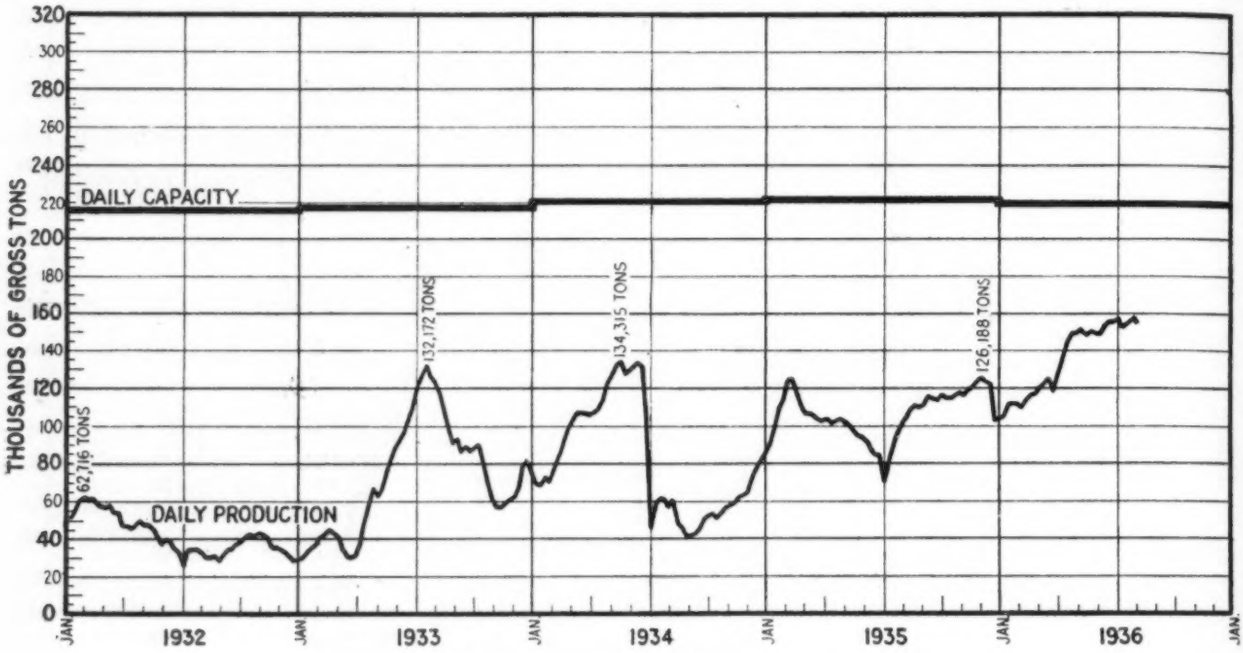
United Kingdom pig iron production in July was 661,100 tons, the highest since March, 1930. The tin plate market is quietly steady. The Continental steel market is busy because of fears of new price advances. Bars and plates are in demand. While raising prices in Norway the cartel cut prices of bars for China, Dutch East Indies and the Philippines.

United Kingdom July exports of pig iron were 11,508 tons of which 1060 was shipped to the United States. Total exports of iron and steel were 216,129 tons.

STEEL INGOT PRODUCTION

Daily Tonnage of Bessemer and Open-Hearth Steel Ingots Produced by Weeks, 1932-1936

Current Week	Last Week	Weeks Ended Aug. 24, 1935	Aug. 25, 1934	Aug. 26, 1933	Aug. 27, 1932
159,118	155,826	111,798	46,240	99,671	31,358



Latest values plotted on the above chart are for the past week in each case.

STEEL INGOT PRODUCTION BY DISTRICTS: Per Cent of Capacity

District	Current Week	Last Week	Weeks Ended July 25, 1936	Aug. 24, 1935	Aug. 25, 1934
Pittsburgh	71.0	65.0	66.0	44.0	11.0
Chicago	73.0	73.0	70.0	60.0	30.0
Valleys	76.0	79.0	76.0	58.0	18.0
Philadelphia	55.0	55.0	53.0	36.0	22.0
Cleveland	76.0	78.0	75.0	43.0	13.0
Buffalo	77.5	77.5	90.0	38.0	19.0
Wheeling	96.0	95.0	96.0	78.0	24.0
Southern	60.5	60.5	54.0	33.0	25.0
Ohio River	86.0	81.0	80.0	60.0	25.0
Western	66.0	66.0	63.0	35.0	10.0
St. Louis	75.0	70.0	90.0	42.0	25.0
Detroit	100.0	100.0	100.0	95.0	76.0
Eastern	90.0	90.0	90.0	35.0	25.0
Aggregate	72.5	71.0	71.0	50.5	21.0
Average Year to Date	63.2	62.9	62.0	45.7	43.0

Weekly Booking of Construction Steel

FROM THE IRON AGE

	Week Ended Aug. 18, 1936	Aug. 11, 1936	July 21, 1936	Aug. 20, 1935	Year to Date 1936	1935
Fabricated structural steel awards	29,495	30,215	20,515	23,608	726,115	507,123
Fabricated plate awards	4,570	555	12,710	275	162,675	122,290
Steel sheet piling awards	2,420	2,700	8,000	0	39,090	36,685
Reinforcing bar awards	2,229	17,659	8,515	5,955	246,878	145,730
Total Lettings of Construction Steel	38,714	51,129	49,740	29,838	1,174,758	811,828

. . . . SUMMARY OF THE WEEK. . . .

. . . Steel ingot output, at 72½ per cent, hits new high for the year.

o o o

. . . Mill backlogs being reduced moderately; demand is steady.

o o o

. . . Steel scrap composite at its peak since Nov. 5, 1929.

STEEL ingot production has rebounded to 72½ per cent of capacity, a new high for the year, from 71 per cent last week; steel scrap has made further sharp price gains in all important districts; a virtual scarcity of coke exists, and incoming orders for finished steel products are at such a steady pace that steel companies' backlogs are being reduced only slightly.

These are the major evidences of sustained industrial activity, with no letdown of more than minor proportions yet in sight. In addition to current demands, prospects are developing that look promising for the fourth quarter, especially in railroad equipment and oil tankage. Locomotive and car builders are tentatively figuring on a fairly large amount of motive power and rolling stock that may not reach the contract stage for several weeks.

Heavy melting scrap has risen 50c. at Pittsburgh, 75c. at Chicago and 25c. at Philadelphia; thus THE IRON AGE scrap composite price has advanced to $15.42, the highest since Nov. 5, 1929. With many dealers holding stocks for still higher prices, an actual shortage of scrap has developed in some districts.

DEMAND for some finished steel products has declined moderately, but in the aggregate the present volume is supporting mill production without much alleviation of the condition of delayed deliveries that has been prevalent for some weeks. Should there be an advance in prices for fourth quarter, another buying movement, perhaps exceeding that which occurred in June, might be expected. Some steel companies have now determined that there would be no violation of the Robinson-Patman law if deliveries at third quarter prices were to extend into the fourth quarter provided all buyers were given an equal opportunity to cover prior to the effective date of the advance.

While there is at present no authoritative basis for a prediction that steel prices generally will be increased, the subject is being very seriously considered, especially in its relation to the demand of some steel workers for higher wages. The two matters cannot be divorced, as a wage increase would necessitate price advances. Higher scrap prices have already added about $2 a ton to the cost of raw steel, and there has been a further element of increased cost in vacations granted to workers.

The present indication is that there will be some price increases, particularly in galvanized sheets, wire products and bars. Electrical sheets have just been advanced $2 a ton for fourth quarter, while, on the other hand, the rail price has been extended to Nov. 1 for deliveries to the end of the year.

WITH the automobile companies and parts makers coming back into the market in a broader way for work on new models, sheet and strip mills have added to their order books for September shipment. Shutdowns of motor plants for change-over to new models will be brief and will have only a temporary effect on steel shipments.

In the construction field there is increasing pressure for haste in getting steel to the job, hence structural mills are working at practical capacity, with a considerable volume of new work in sight. In the New York area are three sizable projects close to an award—7000 tons of fabricated shapes for the Sixth Avenue subway, 5000 tons for a section of the West Side elevated highway and 4000 tons for a hospital on Welfare Island. A railroad station in Los Angeles calls for 10,000 tons.

Railroads are doing a fairly large volume of car repair work in their own shops in anticipation of heavier carloadings this fall and are figuring on new equipment. The Missouri Pacific is inquiring for 200 box cars. The extension of the rail price, with a possibility of an increase effective Jan. 1, is expected to bring some fall buying. The Nickel Plate has ordered 5800 tons of rails and 2000 tons of track accessories.

Tin plate production is holding at about 90 per cent of capacity, despite the effects of the drought on packs of vegetables. Canned wine is a new outlet for tin plate.

. . . PITTSBURGH . . .

. . . Ingot output rebounds to 71 per cent of capacity.

° ° °

. . . Aggregate demand for all products holds at recent rate.

° ° °

. . . Heavy steel scrap advances 50c a ton.

PITTSBURGH, Aug. 18 — Unfilled orders, the result of a combination of second quarter priced tonnage and a better than expected business in July, are still sufficient to support the ingot operations prevalent over the past several weeks. After having declined last week, owing to a shut down in two plants on account of vacations, ingot output in the Pittsburgh district has rebounded six points to 71 per cent of capacity, while operations in the Wheeling district are up one point to 96 per cent.

Aggregate demand for finished products remains at about the level of last week and there are indications that improvement is in order during the remainder of the month. Curtailment on the part of implement makers on account of drought conditions has been felt in the hot-rolled and cold-finished bar markets. Demand for these items is below the bookings placed during the same period in July. However, backlogs are sufficient to keep mills busy until at least the middle of September, at which time a better rate of incoming orders will have materialized.

While orders for shapes and plates for construction projects are not as good as a month ago, the mills have sufficient backlogs to keep them occupied far into September.

Specifications for sheets continue to approximate shipments, so that there is little improvement so far as delivery is concerned and to a lesser degree the same may be said of strip steel.

Tin plate production remains at approximately 90 per cent. However, can makers have curtailed specifications for vegetable packs. The peak of tin plate production has apparently been reached, but the good volume of orders and general line can material, and the fact that mills are behind in deliveries will probably support current operations for some time.

There has been talk of a possibility of increased prices on certain items for the fourth quarter, although nothing definite has developed as yet. One large maker of electrical sheets has advanced prices $2 a ton on all grades for fourth quarter delivery. These items were not advanced at the time other sheets were raised on July 1.

The present price on standard rails has been extended to Nov. 1 for delivery through the end of the year.

The raw material markets are strong with a better movement of pig iron, a tight situation in coke, and a 50c. advance on No. 1 heavy melting scrap.

Pig Iron

Movement of pig iron since the first of the month, although on a hand-to-mouth basis, has shown good-sized tonnages. There is a tendency for individual orders to show an increase, due, no doubt, to the much stronger tone in the scrap market. Should the prices for scrap increase sharply again, there is little doubt that a heavier melt of pig iron will result. Negotiations are almost closed for the resumption of a nearby merchant furnace.

Semi-Finished Steel

Good-sized backlogs from non-integrated makers and a healthier tone in incoming specifications are in the main responsible for a continuation of the recent trend in semi-finished material. Even though specifications fall off, integrated mills would carry on production at present levels for some time since their stocks are badly depleted.

Bolts, Nuts and Rivets

Activity remains at recent levels. The bulk of new business is coming from structural fabricators and miscellaneous sources. Within the past few days new orders from the automobile manufacturers have been in evidence, but as yet are showing a small tonnage. This type of business is expected to increase materially within the next few weeks.

Bars

Producers are faced daily with pressure from consumers for delivery of items booked some time ago. Although new specifications have not been at the rate prevalent in July and backlogs may have been reduced slightly, delivery problems are still rather acute. Implement makers have in some instances shown a tendency to be extremely cautious with regard to new specifications, owing to the possible effect of the drought on their business. It is expected, however, that agricultural interests in the unaffected areas will maintain the demand shown over the past several months. Bookings from automotive sources are still fairly light, but on increase in volume is expected before the end of the month. There has been some seasonal curtailment this month so far as miscellaneous customers are concerned; however, within the past few days there has been evidence of a slightly better tone with regard to incoming orders.

Cold-Finished Bars

Demand remains at about the level of last week, which was considerably under the same period in July. Producers, however, have fair-sized backlogs and before they are worked off to any great extent support is expected from automotive sources. Some tonnages have been received within the past few days from parts makers for the 1937 models. The main deficiency in aggregate demand at this time is due, of course, to the absence of large tonnages emanating from the automobile manufacturers. There has also been some curtailment in demand from implement makers, who have as yet been unable to measure accurately the effect of the drought on their business. The tendency on the part of the latter toward entering new bookings will,

A Comparison of Prices

Market Prices at Date, and One Week, One Month, and One Year Previous: Advances Over Past Week in Heavy Type, Declines in Italics

Rails and Semi-finished Steel

Per Gross Ton:	Aug. 18, 1936	Aug. 11, 1936	July 21, 1936	Aug. 20, 1935
Rails, heavy, at mill	$36.37½	$36.37½	$36.37½	$36.37½
Light rails, Pittsburgh	35.00	35.00	35.00	35.00
Rerolling billets, Pittsburgh	30.00	30.00	30.00	27.00
Sheet bars, Pittsburgh	30.00	30.00	30.00	28.00
Slabs, Pittsburgh	30.00	30.00	30.00	27.00
Forging billets, Pittsburgh	37.00	37.00	37.00	35.00
Wire rods, Nos. 4 and 5, P'gh	38.00	38.00	38.00	38.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	1.80	1.80	1.80	1.70

Finished Steel

Per Lb.:	Cents	Cents	Cents	Cents
Bars, Pittsburgh	1.95	1.95	1.95	1.80
Bars, Chicago	2.00	2.00	2.00	1.85
Bars, Cleveland	2.00	2.00	2.00	1.85
Bars, New York	2.30	2.30	2.30	2.15
Plates, Pittsburgh	1.90	1.90	1.90	1.80
Plates, Chicago	1.95	1.95	1.95	1.85
Plates, New York	2.19	2.19	2.19	2.09
Structural shapes, Pittsburgh	1.90	1.90	1.90	.180
Structural shapes, Chicago	1.95	1.95	1.95	1.85
Structural shapes, New York	2.16¼	2.16¼	2.16¼	2.06¼
Cold-finished bars, Pittsburgh	2.25	2.25	2.25	1.95
Hot-rolled strips, Pittsburgh	1.95	1.95	1.95	1.85
Cold-rolled strips, Pittsburgh	2.60	2.60	2.60	2.60
Hot-rolled annealed sheets, No. 24, Pittsburgh	2.50	2.50	2.50	2.40
Hot-rolled annealed sheets, No. 24, Gary	2.60	2.60	2.60	2.50
Sheets, galv., No. 24, P'gh	3.20	3.20	3.20	3.10
Sheets, galv., No. 24, Gary	3.30	3.30	3.30	3.20
Hot-rolled sheets, No. 10, Pittsburgh	1.95	1.95	1.95	1.85
Hot-rolled sheets, No. 10, Gary	2.05	2.05	2.05	1.95
Cold-rolled sheets, No. 20, Pittsburgh	3.05	3.05	3.05	2.95
Cold-rolled sheets, No. 20, Gary	3.15	3.15	3.15	3.05
Wire nails, Pittsburgh	2.10	2.10	2.10	2.60
Wire nails, Chicago dist. mill	2.15	2.15	2.15	2.65
Plain wire, Pittsburgh	2.40	2.40	2.40	2.30
Plain wire, Chicago dist. mill	2.45	2.45	2.45	2.35
Barbed wire, galv., Pittsburgh	2.60	2.60	2.60	3.00
Barbed wire, galv., Chicago dist. mill	2.65	2.65	2.65	3.05
Tin plate, 100 lb. box, P'gh.	5.25	5.25	5.25	5.25

On export business there are frequent variations from the above prices. Also in domestic business, there is at times a range of prices on various products, as shown in our detailed price tables.

Pig Iron

Per Gross Ton:	Aug. 18, 1936	Aug. 11, 1936	July 21, 1936	Aug. 20, 1935
No. 2 fdy., Philadelphia	$21.3132	$21.3132	$21.3132	$20.3132
No. 2, Valley furnace	19.50	19.50	19.50	18.50
No. 2, Southern Cin'ti	20.2007	20.2007	20.2007	19.2007
No. 2, Birmingham†	15.58	15.58	15.50	14.50
No. 2, foundry, Chicago*	19.50	19.50	19.50	18.50
Basic, del'd eastern Pa.	20.8132	20.8132	20.8132	19.8132
Basic, Valley furnace	19.00	19.00	19.00	18.00
Malleable, Chicago*	19.50	19.50	19.50	18.50
Malleable, Valley	19.50	19.50	19.50	18.50
L. S. charcoal, Chicago	25.2528	25.2528	25.2528	24.2528
Ferromanganese, seab'd carlots	75.00	75.00	75.00	85.00

†This quotation is subject to a deduction of 38c. a ton for phosphorus content of 0.70 per cent or higher.
*The switching charge for delivery to foundries in the Chicago district is 60c. per ton.

Scrap

Per Gross Ton:				
Heavy melting steel, P'gh	**$16.25**	$15.75	$14.25	$13.00
Heavy melting steel, Phila.	**14.25**	14.00	12.25	11.75
Heavy melting steel, Ch'go.	**15.75**	15.00	13.25	12.75
Carwheels, Chicago	15.00	15.00	13.50	12.75
Carwheels, Philadelphia	**15.75**	15.25	14.25	11.25
No. 1 cast, Pittsburgh	14.75	14.75	14.75	14.00
No. 1 cast, Philadelphia	**15.75**	15.25	14.25	11.25
No. 1 cast, Ch'go, (net ton)	13.50	13.50	12.00	11.00
No. 1 RR. wrot., Phila.	14.75	14.75	14.75	10.25
No. 1 RR. wrot., Ch'go, (net)	13.75	13.75	11.50	9.50

Coke, Connellsville

Per Net Ton at Oven:				
Furnace coke, prompt	$3.65	$3.65	$3.50	$3.25
Foundry coke, prompt	4.00	4.00	4.00	4.00

Metals

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Electrolytic copper, Conn.	9.75	9.75	9.75	8.25
Lake copper, New York	9.87½	9.87½	9.87½	8.62½
Tin (Straits), New York	*42.00*	43.25	43.75	50.75
Zinc, East St. Louis	4.80	4.80	4.80	4.60
Zinc, New York	5.17½	5.17½	5.17½	4.97½
Lead, St. Louis	4.45	4.45	4.45	4.10
Lead, New York	4.60	4.60	4.60	4.25
Antimony (Asiatic), N. Y.	12.50	12.50	13.00	13.00

The Iron Age Composite Prices

	Finished Steel	Pig Iron	Steel Scrap
Aug. 18, 1936	2.159c. a Lb.	$18.73 a Gross Ton	$15.42 a Gross Ton
One week ago	2.159c.	18.73	14.92
One month ago	2.159c.	18.84	12.50
One year ago	2.124c.	17.84	12.50
	Based on steel bars, beams, tank plates, wire rails, black pipe, sheets and hot-rolled strips. These products represent 85 per cent of the United States output.	Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Southern iron at Cincinnati.	Based on No. 1 heavy melting steel quotations at Pittsburgh, Philadelphia and Chicago.

	Finished Steel High	Finished Steel Low	Pig Iron High	Pig Iron Low	Steel Scrap High	Steel Scrap Low
1936	2.159c., July 7	2.084c., Mar. 10	$18.84, Jan. 7	$18.73, Aug. 11	$15.42, Aug. 18	$12.67, June 9
1935	2.130c., Oct. 1	2.124c., Jan. 8	18.84, Nov. 5	17.83, May 14	13.42, Dec. 10	10.33, April 23
1934	2.199c., April 24	2.008c., Jan. 2	17.90, May 1	16.90, Jan. 27	13.00, Mar. 13	9.50, Sept. 25
1933	2.015c., Oct. 3	1.867c., April 18	16.90, Dec. 5	13.56, Jan. 3	12.25, Aug. 8	6.75, Jan. 3
1932	1.977c., Oct. 4	1.926c., Feb. 2	14.81, Jan. 5	13.56, Dec. 6	8.50, Jan. 12	6.43, July 5
1931	2.037c., Jan. 13	1.945c., Dec. 29	15.90, Jan. 6	14.79, Dec. 15	11.33, Jan. 6	8.50, Dec. 29
1930	2.273c., Jan. 7	2.018c., Dec. 9	18.21, Jan. 7	15.90, Dec. 16	15.00, Feb. 18	11.25, Dec. 9
1929	2.317c., April 2	2.273c., Oct. 29	18.71, May 14	18.21, Dec. 17	17.58, Jan. 29	14.08, Dec. 3
1928	2.286c., Dec. 11	2.217c., July 17	18.59, Nov. 27	17.04, July 24	16.50, Dec. 31	13.08, July 2
1927	2.402c., Jan. 4	2.212c., Nov. 1	19.71, Jan. 4	17.54, Nov. 1	15.25, Jan. 11	13.08, Nov. 22

no doubt, be extremely cautious over the next month or two, although they expect good business from unaffected areas. Producers expect a better volume of new business before the end of the month.

Rails and Track Accessories

The present price on standard rails has been extended to Nov. 1 for delivery through the balance of the year. The local rail mill is busy on clean-up orders and for the most part is producing sheet bars.

Reinforcing Steel

No important changes have taken place during the past week and incoming business has shown no tendency toward improvement. Mills, however, are actively engaged on heavy backlogs.

Steel Sheet Piling

Carnegie-Illinois Steel Corp. has received the award for 2044 tons of steel sheet piling to be used in the construction of a lock and dam at LeGrange, Ill., on the Illinois River. It will also furnish approximately 973 tons of Z-piling. A few jobs involving about 130 tons each have been let during the past week. Bids were taken Aug. 18 on 470 tons of piling for wharf and dock improvement at Kansas City. A few large Mississippi River dam projects are pending and probably will be announced soon. Meanwhile, projects of less than 100 tons have been moving freely.

Tin Plate

Tin plate operations remain at approximately 90 per cent. Within the past week there has been a drop in new specifications from can makers, which is no doubt directly attributable to the drought. General line business shows no change in the tonnages moving for beer cans and quart oil cans. Backlogs are still heavy. There has been no noticeable change in the rate of shipment releases. However, some material now on order may not be released for shipment for some time, if later analysis of the drought effects shows a worse picture than at the present time. The peak of tin plate production has probably been reached, although it is expected that the present level will continue for some time.

Tubular Products

Demand for oil-country goods is holding up and specifications for boiler tubes are coming in at about the rate prevalent over the past several weeks. Two local plants are working on the large line pipe orders mentioned last week involving approximately 23,000 tons. Movement of standard pipe continues at recent levels.

Wire Products

Aggregate demand for wire products so far this month is less than in the corresponding period in July. Incoming specifications in both merchant and manufacturing wire have been easing off slightly since the first of the month and during the past week there has been no change in this tendency. A light demand for merchant wire products as compared with last month is due to caution on the part of jobbers in the drought area. A resumption of better volume of bookings for manufacturing wire is expected within the next few weeks when automobile manufacturers will be ordering material for new models. Although producers expect the drought to affect merchant wire items, a better volume of business is looked for from the unaffected areas and from agricultural interests that still retain purchasing power. It is known that jobbers' stocks are low and in some cases are practically non-existent.

Sheets

Incoming specifications approximate the level reported for last week. Miscellaneous demand is holding up well, with refrigerator manufacturers taking a fair tonnage. Some material is going into railroad equipment. Backlogs in this district have not been reduced to any extent and the condition is not expected to be alleviated before heavier automobile tonnages make their appearance. A large individual producer has announced a $2 increase per ton on all grades of electrical sheets for fourth quarter delivery. Electrical sheets were not increased at the time other grades were raised for the third quarter.

Strip Steel

Demand remains at about the level reported a week ago, although there are indications that parts makers will be specifying more freely within the next few weeks. Backlogs on cold-rolled strip are good for three to five weeks rolling, while delivery on hot-rolled strip can be made in two to three weeks. Miscellaneous bookings are holding up well, with some hardware and furniture manufacturers taking fair-sized tonnages.

Coal and Coke

Movement of coal from this district to the Lakes continues at capacity. Within the past few weeks there has been evidence that the Mesta consumers have been stocking earlier this year than last. The situation with regards to by-product coke remains the same and inquiries from all over the country are being received by beehive coke producers. There is a possibility that a nearby merchant furnace, if it resumes operations, will use beehive coke, and, if such is the case, more ovens in the Connellsville district will have to be put in operation. Meanwhile, both production and movement of by-product coke continues at virtual capacity.

Shapes and Plates

This week's awards continue to show a number of private projects which over the past several weeks have shown improvement in number. Total plate and shape business booked so far this month is below that of the same period in July. However, miscellaneous demand for small plates and shapes is holding up equally as well as a month ago. Part of this strength is probably attributable to a continuation of renovation and repair going on in industrial plants. Mills in this district have not been able to work off backlogs to any great extent and delivery promises are about the same as a week ago on most items.

Gear Manufacturers' Convention Program

THE nineteenth semi-annual meeting of the American Gear Manufacturers Association to be held on board the steamship Seeandbee, sailing from Navy Pier, Chicago, Tuesday morning, Sept. 8, will include the following papers:

"Things to Think About," by J. H. Jackson, Pittsburgh Gear & Machine Co.

"Designing High Speed Gears for Quiet Operation," by W. P. Schmitter, Falk Corp.

"Plant Management," by W. G. Jones, W. A. Jones Foundry & Machine Co.

"Recent Developments in Bevel and Hypoid Gearing," by A. H. Candee, Gleason Works.

"Relations between Load Rating and Design Stresses," by C. B. Connell, Westinghouse Electric & Mfg. Co.

Truscon Steel Co., Youngstown, in the quarter ended June 30, had net income after depreciation, Federal taxes and other charges of $386,414, compared with net loss in preceding quarter of $66,198 and $3,461 loss in June quarter a year ago. The earnings statement is subject to year-end adjustment and final determination of Federal surtaxes on undistributed profits.

. . . . CHICAGO . . . .

. . . Demand for steel holding at fairly steady level.

o o o

. . . Backlogs still heavy, but are being reduced slightly.

o o o

. . . Automobile and farm implement industries ordering more freely.

CHICAGO, Aug. 18.—The automobile trade is again beginning to be felt in this market in a broad way and farm implement manufacturers are definitely climbing from their recent low of steel needs. These factors, plus uncommon steadiness on the part of most other users, are holding ingot production steady at 73 per cent of capacity. New sales of finished steel also show somewhat better, though the gap is still widening between shipments and incoming business.

The matter of deliveries is serious. In Chicago, a major structural job has been held back two weeks because fabrication of parts for several structural members was delayed by slow mill deliveries. Some finishing units, such as wire mills, are reducing output because of lack of raw steel.

Prices are again the subject of much discussion as fourth quarter announcements are due in about two weeks. The impression is that prices will remain steady on those commodities which were marked up about three months ago. Wire prices, which lack stability at the moment, may undergo upward revision. The rail price has been extended to Nov. 1, for shipment through the remainder of the year. This move is taken by some as a gesture to bring in business during the next two and one-half months, after which a needed price advance will be a logical step.

The Nickel Plate has ordered rails and accessories and more track needs are expected by mills within the next 30 days.

Scrap prices remain exceptionally strong and they are now sufficiently high to draw supplies to Chicago from Texas and Canada. Mills have paid $16.50 a gross ton, delivered, for No. 1 steel scrap.

Pig Iron

August shipments are running 10 per cent below the July rate, but, with automobile foundries near heavy production and farm implement manufacturers climbing from their low, it is probable that much of this lost ground will be regained before the end of the month. Chicago sellers are meeting the new Southern iron prices at certain river points.

Reinforcing Bars

Low bidders on general contracts for the two sections of the Lathrop housing project, Chicago, have been announced. The question of consideration of late bids has come up and lettings on this 1700-ton job may be delayed. Large tonnage jobs are not numerous, but projects for 100 tons and less are more plentiful and private work is growing in this classification. The price situation is still giving concern. Some low-priced bars are available in the hands of borderline jobbers and until used those bars constitute a price menace.

Cast Iron Pipe

The Chicago inquiry for 3000 tons, on which bids will be opened Aug. 18, is the outstanding piece of business before the local trade. All other work is small and, while it consists largely of a clean-up of old WPA work, there is a better sprinkling of private interest, which some sellers think may soon take a more prominent place in the market. There is talk of new efforts to come which will result in extension of WPA with additional tonnages from that source.

Wire Products

Output has dropped about five points to 60 per cent of capacity. The influences are, first, a drop in all merchant lines with the exception of bale ties, and, second, wire mills are having difficulty in getting raw steel. The bale tie situation is interesting in that with a short crop, caused by the drought, and resultant high prices, there is excessive activity in feed baling. The merchant trade, normally slow at this time of year, is not worrying sellers at the moment, but they are glum when they stop to think of the fall trade. The price situation all along the line is not a thing of which the industry can be proud; however, there is a strong undertone of thought which is directed at higher and more stable fourth quarter prices, announcement of which is due in about two weeks. The manufacturing trade still moves at a fast pace. August sales and shipments are the best for any eighth month since 1929.

Sheets

Mills are still pressed nearly to the limit of capacity and deliveries are not better than four to six weeks. Some 1937 automobile releases are now in and preliminary shipping schedules are arranged for the next five weeks, at the end of which time major assembly programs are expected to be under way. Improvement in general construction is helping this market, but mills fear that fall country business will not be very good.

Rails

The Nickel Plate has divided 5800 tons of rails and 2000 tons of track accessories among Carnegie-Illinois, Bethlehem and Inland. Other rail news is lacking, though mills expect additional activity within the next 30 days. Present prices have been extended to Nov. 1 with shipping privileges to the end of the year.

Structural Material

Specifications are taxing mills to the point where deliveries average close to four weeks and fabricators are having trouble in obtaining balanced orders so that jobs can flow smoothly through shops. The Keeshin Terminal Building design has been revised and the tonnage cut from 1000 to 600. The Saverton, Mo., dam is out for figures, 1000 tons being needed, and locks in Tennessee call for 500 tons. The State of Illinois is now beginning to move some of the old overhead crossings on

which figures were taken months ago. Efforts are still being made to revise requirements for the South Ashland Avenue, Chicago, bridge to the point where the available money will cover them.

Plates

A Chicago shop will furnish 500 tons of repairs for a Detroit blast furnace. Other plate tonnages are miscellaneous in character, but they indicate a live interest in this commodity. Specifications against old orders are in good volume and several Western railroads, which in the early stages of the drought held up specifications, have now sent in releases.

Bars

Nineteen thirty-seven model automobile specifications are now beginning to come through and mills count on about Sept. 15 for large specifications which will mark the start of heavy assembly schedules. The agricultural implement picture is spotty. Some plants have only skeleton crews, while others have started to rebound from the low and are adding workers and releasing steel. Road machinery builders have satisfactory schedules and the miscellaneous trade is holding to a high rate of activity. Delayed bar deliveries are troublesome both to producers and users.

Coke

Foundry coke shipments are running slightly ahead of the July rate. Railway equipment and heating and ventilating shops are particularly active.

. . . Business in steel has tapered off.

o o o

. . . Mining industry is very active.

TORONTO, ONT., Aug. 18.—While general business in the Canadian iron and steel markets has tapered off, indications are that there will be improvement in the fall. Sales, however, are running well in advance of those for corresponding periods over the past five years. Montreal steel interests look for some business from Great Britain in the way of munitions orders, but so far this is no more than a conjecture.

The mining industry is the principal factor in current business in various lines of iron and steel demand. Intense activity is progressing in all mining fields of Canada and as a consequence there is a good demand for mining and milling machinery, tools, structural steel, etc. Other branches of industry have tapered off.

The automotive industry is in the mid-season slump, but will go ahead with new models about the middle of next month. Building trades are fairly active, but demand for structural shapes, reinforcing bars, etc., is confined to small tonnage lots, although some good orders are in prospect for early closing. Current demand is for spot delivery and no forward booking has been reported recently.

Demand for merchant pig iron is seasonally quiet, but showed some improvement during the past few days. Orders are appearing in lots of 50 to 200 tons. Sales for the past week or 10 days were chiefly for foundry grades with occasional orders for malleable. The melt continues in excess of 50 per cent of capacity, with indications of improvement in the early fall. Pig iron imports are small, mostly small lots from the United States. Production is holding around 55,000 to 60,000 tons per month with four stacks blowing. Prices are firm and unchanged.

Trading in iron and steel scrap is following the trend of other markets. Demand is spotty and specialized. Steel mills in the Hamilton district are taking steel grades against contract and some good shipments have been made on this account recently. Montreal dealers also are taking heavy melting steel and small tonnage lots of steel axles and rails for spot delivery. Foundries continue to show interest in iron grades and there is a steady market for No. 1 machinery cast and wrought scrap, while malleable is spotty and other lines are dull. Local dealers recently have been making shipments of automobile scrap to the United States, but continue to hold large tonnages in yards. Neither Toronto nor Montreal dealers are exporting scrap to Great Britain, but small lots are going to the United States. Western Canada dealers have shipped scrap to Japan in recent weeks. Prices are firm and unchanged.

. . . Reinforcing bar demand is improving.

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. . . Mill operations at recent rate.

BUFFALO, Aug. 18.—Mill operations show no change, with Bethlehem's Lackawanna plant operating 22 open hearths; Wickwire-Spencer, 2, and Republic Steel, 6.

Reinforcing bar fabricators are gratified because of the heavy run of small orders that are coming into their shops. They point out that private work is distinctly on the rise and that a large volume of repair and addition work is being booked. Fabricators of structural material report an influx of small orders, many from private sources.

Bids were to be taken this week for a 450-ton state highway bridge in Sullivan County. Considerable activity is reported among oil wholesalers, who are inquiring for tank work, the jobs involved being several in number and ranging about 150 and 200 tons.

All grades of steel are reported being booked in good volume.

New Company to Build Tanks and Boilers

A NEW company to be known as Edge Moor Iron Works, Inc., headed by Thomas J. Dillon, who was vice-president of the Struthers-Wells Co., Warren, Pa., has been formed and has purchased the plant of the former Edge Moor Iron Co., Edge Moor, Del., from the receivers. Percy R. Gardiner of Toronto, Ont., is vice-president of the new company. The Edge Moor plant includes about 25 acres of land and a 1200-ft. frontage on the Delaware River. Plate fabrication and the continued manufacture of the Edge Moor water tube boilers will constitute the new company's main activities. A New York office has been established at 30 Rockefeller Plaza.

. . . CLEVELAND . . .

. . . Cleveland and Valleys production rates decline slightly.

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. . . Demand for finished steel holding up well.

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. . . Automobile parts makers ordering freely for September shipment.

CLEVELAND, Aug. 18.—Ingot output in the Cleveland-Lorain district declined two points this week to 76 per cent of capacity, one open hearth furnace being taken off in Lorain. In the Valleys operations are also at 76 per cent, which is a drop of three points.

Production of sheets and strip steel by some makers has been slowed down for vacations and repairs. The Newton Steel plant of the Republic Steel Corp. in Monroe, Mich., is shut down this week for repairs.

Demand for finished steel is holding up well, the volume being about the same so far this month as during the corresponding period of July, and orders are about equal to shipments, so that there is little reduction in the heavy mill backlogs. However, some of the mills can make a little better delivery on bars than recently which is evidently due to a slowing down in orders from the motor car industry.

Automobile parts makers are ordering sheets and strip steel quite freely for September production of parts for new models, and these, as well as other buyers, are pressing for early delivery. Demand for sheets from makers of refrigerators, stoves and other household appliances is well maintained. Some of the manufacturers of these products have been able to keep up operation schedules and defer the seasonal slowing down longer than had been expected. Orders for galvanized sheets continue very heavy, and some of the mills cannot promise shipment inside of about eight weeks. A $2 a ton advance on electrical sheets by one maker is expected to be placed in effect by other mills. The Nickel Plate railroad has placed 5800 tons of rails. The present price on standard rails and splice bars has been extended until Nov. 1 for deliveries until the end of the year.

Scrap prices have been advanced 50c. a ton in the Cleveland and Valley district.

Pig Iron

Foundry iron in small lots is in fair demand and a heavier volume of buying is looked for in September, when many foundries, following past practices, are expected to place contracts covering their early requirements and the fourth quarter. Recent advances in scrap prices have given the market a very firm tone. Fourth quarter prices will be named Sept. 1 and there is at present no basis for a prediction that quotations will be changed. August shipments are close to those in July. Stocks are low in both consumers' and producers' yards. Some of the automotive foundries are preparing for production of motor blocks for new models and others making castings for body dies are stepping up production.

Bars, Plates and Shapes

Structural shapes in lots of less than 100 tons are in good demand for private construction work, largely for plant extensions. Much of the steel for this work is being placed at the present price, the projects having come out after the expiration of the date for securing protection on identified projects at the second quarter price. A new oil refinery for the Shell Petroleum Corp., in Houston, Tex., will require 1000 tons of shapes and plates. Arthur G. McKee & Co., Cleveland, engineer and contractor for the project, has placed about one half of this work with the A. O. Smith Corp., Milwaukee, and the remainder with several other fabricators. Bids were opened today for three Ohio grade crossing elimination projects requiring 1600 tons of steel. Miscellaneous demand for bars is good and some new business is coming from forge shops for automobile parts, although the demand from that industry is comparatively light at present. Plates are moving well.

Sheets

Demand continues good and mills are catching up only a little on deliveries, although some have reduced their backlogs of cold-rolled sheet orders. A fair volume of business is coming from automobile parts manufacturers for new models and buyers are urging as prompt deliveries as possible. Makers of refrigerators have enjoyed a good season and have continued to order sheets as have manufacturers of stoves and washing machine tubs. Galvanized sheet orders continue heavy and some mills are eight weeks behind on shipments. In case there is no general advance in sheet prices for the fourth quarter, some makers feel that galvanized sheets at least should be marked up. One producer has advanced electrical sheets $2 a ton and others are expected to follow suit.

Strip Steel

Some new business in sizable lots of hot and cold strip was placed during the week by leading makers of automobile parts who have established good production schedules for September and have placed orders for shipment as soon as possible. Mills generally have fair backlogs of hot strip and some are from four to six weeks behind on deliveries of cold strip.

Iron Ore

Receipts of Lake Superior ore at Lake Erie ports during July were 5,063,953 tons, against 3,295,198 tons during the same month last year. Receipts at these ports for the season until Aug. 1 were 12,408,570 tons, compared with 8,524,165 tons during the same period last year. July shipments from Lake Erie docks were 3,829,688 tons, against 2,328,068 tons during July last year and for the season until Aug. 1 were 10,161,181 tons, against 6,670,614 tons up to August, 1935. Although Lake shipments have sharply increased this year, nearly all the ore is going direct to the furnaces and the dock balance has declined, being 4,016,613 tons as of Aug. 1, compared with 4,282,019 tons on the same date a year ago.

..SAN FRANCISCO..

. . . General business has a healthy tone.

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. . . WPA inquiry for 10,000 tons of rails.

SAN FRANCISCO, Aug. 17.—The Metropolitan Water District has suspended a contract with the Bethlehem Steel Co. for 18,900 tons of reinforcing steel pending the outcome of a dispute between two Federal departments. The material, to be used for flood control work, was to have been purchased with a $6,500,000 Federal loan.

Specifications for the $10,000,000 drydock, to be berthed at Pearl Harbor, Hawaii, indicate that 22,636 tons of plates, 6849 tons of structural steel and 345 tons of high tensile steel will be involved. Although bids are scheduled to be opened Sept. 30, it is generally believed that there will be an advancement of date owing to the magnitude of the project and the tardiness of issuing specifications. The Union Railroad Station, Los Angeles, on which bids will be opened Sept. 15, will require 10,000 to 12,000 tons of structural steel, according to preliminary estimates. The Trans-Bay Terminal Building, to be constructed on the San Francisco shore, will involve approximately 2000 to 3000 tons of shapes and may come up for bids within the next 90 days.

The San Francisco office of the WPA has requested bids on 10,000 tons of 85-lb. rail. It is understood that the Union Pacific Co. has made inquiry for 250 to 1000 underframes for delivery at its Portland shops.

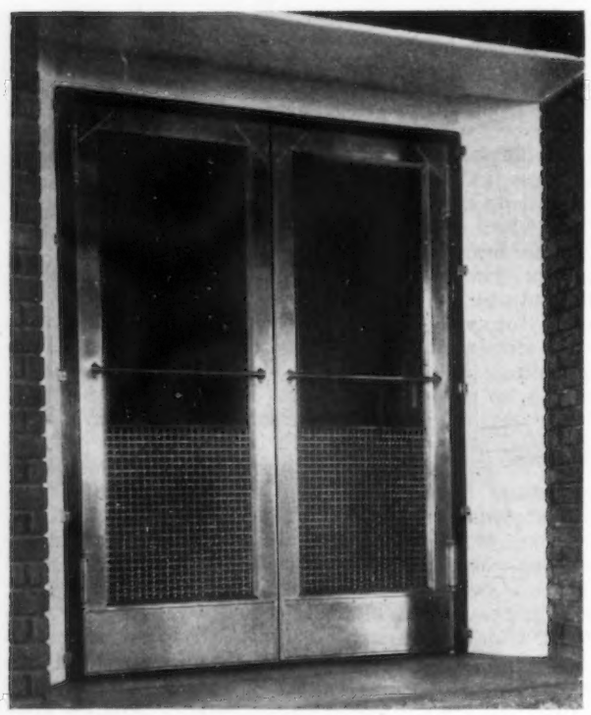
Lettings during the past week aggregated 2363 tons of structural steel and 1146 tons of reinforcing bars. Herrick Iron Works took 828 tons of shapes on three projects, while Golden Gate Iron Works is understood to have signed 500 tons of structural steel for the California Corrugated Culvert Co. plant addition at Berkeley, Cal. Bar lettings were minor and divided among various bidders.

The healthy tone of general business activity on the Pacific Coast is reflecting itself in the continued high rate of mill operation and the absence of a sharp seasonal decline in jobbing sales.

The scrap market is strong and price increases are anticipated.

Navy Boats to Take 14,400 Tons of Steel

WASHINGTON, Aug. 18.—Approximately 14,400 tons of steel will be required for 12 destroyers and six submarines for which the Navy Department will receive bids from private yards and estimates from navy yards tomorrow. Broken down, requirements are estimated at 8640 tons of plate, 4320 tons of shapes and 1440 tons of bars. Destroyer tonnage will be about 5480 tons of plates, 3240 tons of shapes and 1080 tons of bars. An equal number of each type of vessel will be divided between private and navy yards.



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HERE'S a new use for stainless steel. Usually an unattractive necessity, these stainless steel screen doors fabricated by John Van Range Co., Cincinnati, Ohio, add an impressive air to the entrance of this building. Being of stainless steel, there is of course, no warping, sticking, rusting or discoloring. Regardless of wear or weathering, they are always the same, the finish clean and shining and the doors easy to handle. The frame is wood-filled and covered with ARMCO Stainless Steel 22 gage No. 4 polish. The kick-plates are of 10 gage. The corners were mitred, welded and then screwed to the frame. The mesh is stainless steel wire cloth and the hinges chrome plated.

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. . . . NEW YORK. . . .

. . . Car and locomotive work in the offing.

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. . . Steel buying heavy in some products.

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. . . Possibility of price rise engages interest of trade.

NEW YORK, Aug. 18.—Although the volume of new business in steel products as a whole has fallen off in the past week, there has been heavy ordering in some products, particularly structural shapes, plates and sheets. Moreover, the amount of work that has tentatively come into the market offers encouragement for an active fourth quarter. Locomotive and car builders are figuring on a considerable volume of new work; on some of this financing arrangements will be necessary after preliminary estimates have been obtained. Oil companies are expected to buy a good deal of tankage this fall.

A secondary buying movement of large proportions is regarded as a certain outcome if price advances are announced for fourth quarter. Thus far, the only change in domestic price is a $2 a ton rise on all grades of electrical sheets. However, an advance of $1 a ton on plates, shapes and bars for export, except to Canada, has gone into effect. On the other hand, rail makers have informed customers that the present rail price of $36.37½ per ton will remain in effect on all orders received up to Nov. 1 for shipment not later than Dec. 31. Other than on electrical sheets, no word has reached New York sales offices as to what products, if any, will be advanced, but it is regarded as certain that higher mill costs, brought about by increased prices for scrap and the expense of employees' vacations, will necessitate some increases. The cost of making steel has risen at least $2 a ton because of higher scrap alone, making no allowance for the increased labor cost due to vacations.

Closely allied in interest with the much-discussed possibility of price increases is the extreme uncertainty regarding the manner in which the Federal authorities may eventually interpret the Robinson-Patman law. Legal departments of steel companies have issued so many "don'ts" to sales departments that the selling of steel is hedged about with more perplexities than the trade has ever known. Many contracts are being rewritten to escape possible violation of the price discrimination feature of the law. The law makes the buyer equally as guilty as the seller in any violation.

One question that has disturbed some steel companies is whether, in the event of price increases, they could ship steel, say in October, at the third quarter price if a higher price were being quoted on orders received after Oct. 1. Some companies now believe that no price discrimination could be charged in such a procedure provided every buyer received an equal opportunity to cover at the same time. Thus, if price increases are to come, they will probably be announced within the next week or 10 days. The importance of this question lies in the fact that the filled-up condition of the mills makes it certain that a good deal of buying before a price rise goes into effect will, of necessity, require October delivery.

Two large fabricated structural steel jobs are in the market and will be settled soon—7000 tons for a section of the new Sixth Avenue subway and 5000 tons for another section of the West Side elevated highway.

The U. S. Department of Agriculture's report of Aug. 12, showing the condition of truck crops for commercial canning as of Aug. 1, bears out recent reports of a considerable shrinkage due to drought. In sweet corn, the product worst hit, a pack only 49.6 per cent of normal was indicated; in snap beans, about 16 per cent below the production of 1935; in tomatoes, 73.2 per cent of normal; in green lima beans, 77.3 per cent of normal; in beets, 55.6 per cent of normal; in cabbage for sauerkraut, 60.9 per cent of normal. However, it is believed that a good deal of the tin plate and cans that were made for crops that have fallen short of expectations will be used for other products in which there will be increased packs—spaghetti and baked beans, for example. A good deal of tin plate is now being shipped to the Pacific Coast, where crops are normal.

Pig Iron

In some cases foundries have been affected by the hot weather, but the demand for pig iron shows no tendency to alter appreciably. Sales continue in fair volume, and the situation points to brisk conditions ahead when books for September and fourth quarter are opened. Some northern New Jersey foundries lowered their melt last week, as the heat rendered working conditions uncomfortable. In Brooklyn, however, where the recent strike caused backlogs to accumulate, most establishments kept going at a busy rate. The need for competent molders by the foundry industry is a serious issue, and recently this district has begun to feel a shortage.

Reinforcing Steel

Current awards are small, but new business is coming in at a fair rate. Not much change has been reported in the price situation, although it is known that there have been some instances of shading under the quoted price. About 5500 tons of bars are due to be placed soon, pending jobs of that amount now beng on hand.

The Bureau of Labor Statistics of the United States Department of Labor has published a bulletin entitled "Earnings and Hours in Blooming, Rail, Structural, Plate and Billet Mills, Iron and Steel Industry, 1933 and 1935." The publication is the result of a recent survey made by the Bureau of Labor Statistics of wages, hours and working conditions in the iron and steel industry.

. . BIRMINGHAM . .

. . . Steel operations hold at high level.

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. . . Pig iron business is gaining.

BIRMINGHAM, Aug. 18. — Steel production this week is holding last week's increase. Fourteen open hearths are again scheduled for operation. The flow of new tonnage is undiminished and bookings are being received for all general lines, except rails. Bars, plates, structural shapes and sheets are active. Only wire products are lagging. In the next month it is likely that wire products demand will improve, as fall farm buying is due to pick up with the marketing of crops.

It is believed that the Ensley rail mill will reopen the week of Aug. 24 for a few days' run, on about 2000 tons, but no official announcement has been made.

The pig iron market is looking upward and August business will probably exceed that of July. The third quarter has been better than expected. Lately foundries have been buying carefully. It is likely that the current base price will be reaffirmed for the fourth quarter when books are opened Sept. 1. Pipe consumption has been lagging in recent weeks. On the other hand, stove plants have been more active.

Furnace operations have not changed since June 30. Ten furnaces are in blast, seven on foundry iron and three on basic.

Ore mines of the Tennessee Coal, Iron & Railroad Co. will resume production this week. The mines were closed June 1, when some of the miners went on strike and violence broke out. The miners have agreed to a four-month trial of the company's "incentive" wage plan.

Shook & Fletcher Supply Co., Birmingham, is establishing an ore plant in the Russellville, Ala., brown ore district. This will be ready for operations around Nov. 1.

Bessemer, Ala., plant of Pullman-Standard Car Mfg. Co. has completed 100 phosphate cars for the Seaboard Air Line Railway and will mark time for several weeks before starting work on other orders, which include 500 box cars for the Southern Pacific and 200 steel hopper coal cars for Central of Georgia. Birmingham-Southern Railroad, subsidiary of the U. S. Steel Corp., has announced that it intends to place an order with the Bessemer plant for 100 steel box cars and 25 gondolas, but the order has not yet been definitely given, according to local officials.

Bids will be opened Sept. 4 for the construction of the impounding dam for Birmingham's $6,000,000 industrial water system. Alternate bids will be received on concrete and rock-fill earth.

Bids will also be opened Sept. 15 on the superstructures for Birmingham's $2,500,000 low-rent negro housing project. The previous bid date was July 21, but no bids were submitted.

. . . BOSTON . . .

. . . Unemployment gradually decreasing in metal trades.

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. . . Supply of skilled labor acute in some lines.

BOSTON, Aug. 18.—Pig iron buying the past week approximated better than 1200 tons, of which the Mystic Iron Works received a generous percentage. Hot weather cut down the New England melt to some extent, but foundry sentiment is optimistic and furnace representatives anticipate good fourth quarter buying after Sept. 1.

General business in New England is running comfortably ahead of a year ago and unemployment is gradually decreasing. To illustrate, employment in western Massachusetts metal trades on Aug. 1 was 859 greater than on July 1, this year, and 5018 more than a year ago. Gains are recorded for nearly all lines, including electric products, special machinery, automotive equipment, machine tools, bicycles and equipment for the building trades. The supply of skilled labor in the metal field continues acute.

Reports of inability to secure reasonably prompt steel product deliveries are growing more numerous.

... Ingot output higher in district.

o o o

... Good volume of orders in most lines.

ST. LOUIS, Aug. 18.—A fairly good volume of business is moving in most lines of finished iron and steel, the exceptions being fencing and roofing, which have been affected by the drought. Bale ties continue in good demand. Manufacturers who use sheets, as, for instance, stove interests, are buying supplies. A heavy tonnage of plates is being used in the manufacture of tanks and barges, with the result that makers of plates are giving extended deliveries, from four to five weeks.

With the price of scrap iron advancing, there has been some talk of higher prices for pig iron, the differential between the two items being such as to stimulate the demand for pig iron. However, there has been little or no buying of pig iron in anticipation of higher prices. Shipments for August have been better than for the same period in July, which was better than June.

Ingot production has been stepped up to 74 per cent of capacity in the St. Louis district.

Appleton, Wis., has placed 4000 ft. of 6-in. centrifugal pipe with United States Pipe & Foundry Co.

Port Washington, Wis., has applied for PWA grant for construction of new water filtration plant, intake, etc., estimated to cost $199,474.

Random Lake, Wis., has placed 200 tons of 6 and 8-in. pipe with James B. Clow & Sons.

Town of Mount Pleasant, Racine County, Wis., closes Aug. 21 on 13,645 ft. of 6-in. water mains at office of Foley & Brach, attorneys, 300 Sixth Street, Racine.

Tigerton, Wis., received no bids Aug. 7 on about 200 tons of 4, 6 and 8-in. pipe, and will take new bids Aug. 28.

Eau Claire, Wis., has applied for PWA grant of $55,000 for waterworks improvements.

Seattle will open bids Aug. 20 on 138 tons for second extension on Rainier Avenue.

New Kensington Water Co., New Kensington, Pa., plans trunk line for main water supply in Stanton Avenue and Seventh Street. Improvements will be made at pumping station at Valley Camp, with installation of new equipment for increased service. Entire project will cost about $100,000. J. G. Griffiths is superintendent.

Houston, Tex., plans pipe lines for water system in Forest Hill, Irvington and Park Place districts. Also 300,000-gal. elevated steel tank and tower for supply in Lyons Avenue area. Cost about $115,000.

Ashland, Ky., is arranging fund of $34,000 through Federal aid for pipe lines for water supply and sewer system. Proposed to begin work soon.

Combined Locks, Wis., plans pipe lines for water system. Fund of $15,700 is being arranged through Federal aid. A. E. McMahon Engineering Co., Menasha, Wis., is consulting engineer in charge.

Pleasant Hill, Mo., plans quantity of 10 and 12-in., for main water system. Special election has been called to vote bond issue.

Loganville, Pa., will take bids soon for pipe lines for water system; also for other waterworks installation. Fund of $58,100 has been secured through Federal aid.

Bradford, Pa., plans pipe lines for water system. Fund of $14,000 is being secured through Federal aid.

Houghton and Hancock, Mich., plan joint installation of 12-in., from water supply source near Baltic, Mich., for trunk line service to both municipalities. Fund of about $200,000 has been secured through Federal aid. Carl W. Hanke, mayor, Hancock, is active in project.

Leesville, S. C., plans pipe lines for water system and other waterworks installation. Fund of $54,000 has been secured through Federal aid.

El Dorado, Tex., plans pipe lines for water supply and other waterworks installation. Fund of $78,000 is being arranged through bond issue and Federal financing. H. R. F. Helland, Frost National Bank Building, San Antonio, Tex., is consulting engineer.

Issaquah, Wash., plans pipe lines for water system. Also other waterworks installation. Fund of $65,000 will be arranged through bond issue and Federal aid. Parker & Hill, Smith Tower Building, Seattle, are consulting engineers.

Grandfield, Okla., plans about 14,400 ft., 8-in., to replace present 6-in. lines for water system. Cost about $36,000. Financing is being arranged through Federal aid.

Pleasanton, Tex., plans about 5 miles, various sizes, for water system. Also pumping station and elevated steel tank and tower. Bond issue has been approved. Financing in amount of $45,000 will be arranged through Federal loan and grant. A. A. Ririe, 655 East Woodlawn Avenue, San Antonio, Tex., is consulting engineer.

St. Marys, Mo., has voted bonds for $30,000 for pipe lines for water system and other waterworks installation. Russell & Axon, 4903 Delmar Boulevard, St. Louis, are consulting engineers.

"The Strength and Elastic Properties of Cast Iron"—by W. J. Schlick and Bernard A. Moore—Bulletin 127 of the Iowa Engineering Experiment Station, Iowa State College, Ames, Iowa, has been issued recently and is available without charge. The bulletin deals with the strength and elastic properties of cast iron in combined tension and flexure, as well as in tension, compression and flexure.

. . PHILADELPHIA . .

. . . Philadelphia operations remain at 55 per cent with no downward change in sight.

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. . . Higher fourth quarter prices considered essential.

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. . . Baldwin Locomotive and Pennsylvania Railroad are buying but shipyard releases continue to lag.

PHILADELPHIA, Aug. 18.—There is little or no change in mill backlogs, but almost every district sales office reports a definite slackening in new business. This decline, however, has not reached serious proportions, and the general expectation is that within several weeks new bookings will be coming in at a pace comparable with that reached in July. No district mill looks for any serious curtailment in rolling activity over the remainder of the year.

There is here a rather resigned acceptance of the fact that finished steel prices will necessarily go to higher levels for fourth quarter delivery. Leading companies have probably not yet definitely decided what action to take, but sellers here believe that a rocketing scrap market and the cost of vacations-with-pay will force the issue. If higher prices are announced it would mean that October and November steel making activity would probably be maintained at today's level.

Inasmuch as every mill is crammed with orders, there has been no price problem here with one or two minor exceptions such as the resale situation in wire nails and pipe. For the most part all low-price second quarter business has cleared the mills although there is some cold-drawn and reinforcing steel and a little sheet tonnage still undelivered.

All producers here are operating at a pace unchanged from last week. Alan Wood may soon add a fifth furnace, Phoenix still has three units on, Pencoyd and Central have four, Worth has three, and Lukens still has eight furnaces on. Bethlehem's three district plants continue to average well over 60 per cent. The current district operating rate of 55 per cent compares with 36 per cent for the same period a year ago.

Pig Iron

New business so far in August has been running ahead of that booked in July. Jobbing foundry activity is showing a tendency to improve further, and, consequently, more iron is being purchased. Stove making likewise is accelerating. Word has been passed around to sales offices that no price rise is contemplated for fourth quarter. However this decision has not been formally announced and may even be altered if scrap prices should continue their rapid march upward.

Sheets

Even though new sheet business has shown signs of tapering off, mills still have excellent backlogs and delivery in five or six weeks is generally specified for new orders of most grades. At least one local mill can give three weeks delivery on blue-annealed sheets and is currently securing a little more of its normal share of new business for this reason alone. The Pennsylvania Railroad has bought some tonnage for car repairs, nearby radio and stove makers have used up a great proportion of stock bought in the second quarter, and autobody makers here are now in fall production and have covered their sheet requirements through September. Present indications are that prices will advance for the final quarter; such a development would force through considerable forward tonnage during September.

Plates

Three weeks is about the best plate delivery obtainable on new business in this territory. Miscellaneous demands are holding up very well, and sellers here even look for improvement over the next two months. Baldwin Locomotive Works has orders for 33 locomotives and has bought some of the steel required for this work. Pennsylvania Railroad is reported to have purchased several good tonnages for car work and is contemplating the purchase of additional steel. So far the shipyards have released no specifications on their large backlog of work. Definite action is anticipated, however, during the next month. Undoubtedly plates will be included in any advance in fourth quarter prices for finished steel.

Imports

The following iron and steel imports were received here last week: 9020 tons of manganese ore from British West Africa; 402 tons of pig iron from British India and 1102 tons from the Netherlands; 261 tons of ferro-manganese from the Netherlands and 200 tons from Poland; 42 tons of steel tubes, 17 tons of steel forgings and 43 tons of steel bars from Sweden; 3 tons of steel bars from France and 175 tons from Belgium; 71 tons of steel bands from Belgium and 10 tons from France; 2 tons of diamond plates and 73 tons of structural shapes from Belgium, and 102 tons of structural shapes from France.

New Radial Drill of High-Speed Design

A NEW radial drill by the Morris Machine Tool Co., Cincinnati, is built with a 9-in. column and 3 and 4-ft. arm, in both light and heavy duty types. The drive is by constant speed reversing motor mounted on the rear of the arm. A reversing clutch is built into the head at the lower right-hand corner.

Arm elevating, lowering and clamping mechanism is a separate motor-driven unit operated by a lever at the bottom of the column and provided with full safety devices. Feeds and speeds are consistent with requirements for high-speed work.

FABRICATED STEEL

. . . Lettings decline slightly to 29,495 tons from 30,215 tons last week.

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. . . New projects in large volume at 35,855 tons compared with 24,915 tons a week ago.

NORTH ATLANTIC STATES

Concord, N. H., 150 tons, overpass, to Boston Bridge Works, Inc.

Whitesboro, N. Y., 325 tons, grade crossing elimination, to the Bethlehem Steel Co.

New York, 970 tons, Triborough low level bridge, Little Hell Gate, to American Bridge Co.

Ardsley-on-Hudson, N. Y., 340 tons, Hudson House, Inc., 7-story apartment, to American Bridge Co.

East Orange, N. J., 260 tons, high school building, to H. R. Goeller, Inc.

Philadelphia, 400 tons, Acme Can Co. building, to Bethlehem Steel Co.

Philadelphia, 110 tons, Rohm & Haas building addition, to Frank M. Weaver & Co., Inc., Lansdale, Pa.

Camden, N. J., 135 tons, J. C. Dunn Co. manufacturing building, to Belmont Iron Works.

SOUTH AND SOUTHWEST

Memphis, Tenn., 3300 tons, Pickwick dam, transmission towers, to American Bridge Co.

Dallas County, Tex., 965 tons, bridge, to Mosher Steel Co.

Tarrant County, Tex., 800 tons, highway bridge, to the North Texas Iron & Steel Co.

CENTRAL STATES

Cincinnati, 5000 tons, post office, Great Lakes Construction Co., low bidder on general contract.

Springfield, Ohio, 1500 tons, International Harvester Co., to Gage Structural Steel Co.

Delaware County, Ind., 300 tons, bridge, to Fort Pitt Bridge Works, Pittsburgh.

Vigo County, Ind., 275 tons, bridge, to Insley Mfg. Co., Milwaukee.

Warren, Ind., 310 tons, Nickel Plate Railroad, bridge repairs, to American Bridge Co.

Washington County, Ill., 205 tons, bridge, to Missouri Bridge & Iron Co.

Madison County, Ill., 1180 tons, bridge, to Illinois Steel Bridge Co., Jacksonville, Ill.

Douglas County, Ill., 105 tons, bridge, to Mississippi Valley Structural Steel Co.

Lake County, Ill., 260 tons, bridge, to American Bridge Co.

Lake Bluff, Ill., 165 tons, bridge, to Gage Structural Steel Co.

Joliet, Ill., 1000 tons, grade crossing elimination, to Bethlehem Steel Co.

Batavia, Ill., 500 tons, Campana Corp., to Bethlehem Steel Co.

Chicago, 125 tons, substructure for Ashland Avenue bridge to Gage Structural Steel Co.

Harrisburg, Ill., 535 tons, coal tipple, to Pan American Bridge Co., New Castle, Ind.

Detroit, 200 tons, factory addition for Arvey Co., to R. C. Mahon Co.

Detroit, 500 tons, blast furnace repairs, to John Mohr & Sons.

Jackson, Mich., 525 tons, Reynolds Spring Co. building, to the Austin Co.

New Goshen, Ind., 275 tons, State highway bridge, to the Vincennes Steel Co.

Republic County, Kansas, 675 tons, highway bridge, to the St. Joseph Structural Steel Co.

Fillmore County, Minn., 105 tons, bridge, to American Bridge Co.

Milwaukee, 400 tons, store addition, F. W. Woolworth Co., to Wisconsin Bridge & Iron Co.

Milwaukee, 245 tons, bridge, Port Washington, to Milwaukee Bridge Co.

Milwaukee, 335 tons, bridge, Silver Springs, to Milwaukee Bridge Co.

Wausau, Wis., 265 tons, Moon and Halder bridges, Marathon County, to Wausau Iron Works.

Tigerton, Wis., 140 tons, State bridge No 215, to Vierling Steel Works.

Fort Peck, Mont., 300 tons, intake tunnels, to Midland Structural Steel Co., Cicero, Ill.

Green River, Wyo., 220 tons, underpass, to Omaha Steel Works.

Lucas County, Iowa, 130 tons, bridge, to Pittsburgh-Des Moines Steel Co.

WESTERN STATES

Idaho Springs, Colo., 205 tons, highway bridge, to the Midwest Steel & Iron Co.

Oakland, Cal., 2600 tons, factory building for the Owens-Illinois Glass Co., to the Moore Dry Dock Co.

Los Angeles, 225 tons, building for West Coast Improvement Co., to Pacific Iron & Steel Co.

(CONTINUED ON PAGE 96)

Finished Steel Produced for Sale In First Half, 14,369,150 Tons

FINISHED steel produced for sale, less shipments to members of the industry for conversion into further finished products, totaled 8,091,044 gross tons in the second quarter of this year, according to a report of the American Iron and Steel Institute. This tonnage, sufficient to maintain operations at 71.5 per cent of finishing capacity, compares with 6,254,777 tons in the first quarter, or 55.3 per cent of capacity, and 5,279,047 tons in the June quarter of 1935, equal to 45.1 per cent of capacity.

For the first six months this year the total volume of steel products produced for sale, less such shipments as are above specified, was 14,369,150 gross tons, the equivalent to 63.5 per cent of finishing capacity. This compares with 10,558,383 tons in the first half a year ago.

Production for sale of standard rails (over 60 lb.) in the second quarter totaled 373,187 gross tons, indicating 36.4 per cent of rail capacity. Output of light rails (60 lb. and under) came to 18,554 tons, or 9.6 per cent of capacity. All others, including girders, guards, etc., aggregated 11,654 tons, or 33.3 per cent of capacity. Splice bars and tie plates amounted to 141,516 tons, 35.2 per cent of the capacity.

Heavy structural shapes produced for sale during the quarter totaled 576,648 tons, or 43.7 per cent of capacity. Steel piling involved 30,983 tons, 46.8 per cent. Sheets came to 1,747,612 tons, excluding shipments to the industry for subsequent conversion. The total for bars was 1,485,912 tons. The quarter's output of tin plate was 572,298 tons, representing 88.2 per cent of capacity. For the six months' period tin plate operations averaged 75.9 per cent of capacity.

Republic Light, Heat & Power Co., Jackson Building, Buffalo, is securing rights of way for new 8-in. welded steel pipe line through Hanover, N. Y., and vicinity to connection with main trunk line at Sheridan, N. Y., for natural gas transmission. Line will reach from Arcade, N. Y., to last noted point.

Crescent, Okla., plans steel pipe line system for municipal gas distribution. Cost about $41,000. Bond issue of $27,000 has been approved and remainder of fund will be secured through Federal aid.

Athens Gas Co., Athens, Tex., has awarded contract to Freddell Construction Co., Fannin Building, Houston, Tex., for welded steel pipe line from gas field district at Cayuga, Tex., about 18 miles, for natural gas transmission to Athens and vicinity, where steel pipe line distribution system will be installed.

Birmingham has low bid from Christie, Hutchinson & Burton, 113 Third Avenue North, Birmingham, at $269,508 for installation of steel pipe line from impounding reservoir to new water storage terminal for industrial water system, and is scheduled to secure award. Pipe will be furnished by city.

Lion Oil Refining Co., El Dorado, Ark., and Root Refining Co., same place, plan joint construction of 3-in. welded steel pipe line from El Dorado to point on Ouachita River, near Champagnolle, Ark., about 13 miles, for gasoline transmission. Terminal for storage and loading on river barges will be located on river front. Cost over $100,000. Col. T. H. Barton is president of first noted company.

Missouri Pacific has asked for bids on 200 40-ton sheathed box cars for Gulf Coast Lines.

J. G. Brill Co. has received orders for 57 dual motor trolley busses from the Indianapolis Railways, Inc., seven single motor trolley busses from Shreveport Railways Co., and 32 single motor trolley busses from Louisville Railway Co.

American Car & Foundry Motors Co. has received orders for four motor coaches from Houston Electric Co., 10 from Worcester Street Railways Co., 13 from the Connecticut Co., New Haven, Conn., and 18 from Eastern Massachusetts Street Railway Co., Boston.

Temiskaming & Northern Ontario has specified Timken bearings and boxes for nine new coaches which the National Steel Car Corp., Hamilton, Ont., is building for them.

Union Pacific has ordered Timken Roller bearings for bearings and boxes on all axles, including driving axles, on a 4-6-2 and a 4-8-2 locomotive. These locomotives will also be equipped at the same time with Timken design light weight main and side rods, pistons and piston rods made from Timken high dynamic steel, forged and heat treated. The rods and crossheads will operate on Timken bearings.

RAILS AND TRACK SUPPLIES

P. W. A. office at San Francisco is inquiring for 10,000 tons of 85-lb. rail.

Nickel Plate has divided 5800 tons of rails and 2000 tons of accessories among Carnegie-Illinois Steel Corp., Bethlehem Steel Co. and Inland Steel Co.

East Texas Refining Co., Dallas, Tex., Freeman W. Burford, president, plans welded steel pipe line from East Texas oil field area to Natchez, Miss., for gasoline transmission. Terminals for storage and distribution will be located on Mississippi River at last noted place. Cost over $400,000.

Potter Pipe Line Co., Tyler, Tex., F. W. Fischer, Tyler, secretary, recently organized, plans 6-in. welded steel pipe line from oil field district near Corpus Christi, Tex., to Clarkwood, Tex., and vicinity, including branch pipe line to points in Duval County, for crude oil transmission. A steel pipe line gathering system will be installed in oil field area. Cost close to $200,000. Joseph Potter, Corpus Christi, will be president of new company.

... Sheet mill operations at 90 per cent.

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... Ingot output higher.

CINCINNATI, Aug. 18.—Sheet steel demand is steadily active at about 90 per cent of capacity. Widespread miscellaneous usage is disclosed by the fact that only 12 per cent of current business is from automotive sources.

Steel ingot production spurted upward the past week. Twenty-nine open hearths out of 34 are now in production against 26 last week.

Price changes on pig iron have had no marked effect on the local market. Ordering totals about 1000 tons a week with melters pressing for delivery. Foundry operations are slightly better than last week and are on a par with business of June. All melters are represented in the demand, although stove and machine tool foundries show the largest increase.

. . . NON-FERROUS . . .

. . . *World copper stocks declined 26,600 tons in July.*

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. . . *Unusual demand for lead continues.*

NEW YORK, Aug. 18.—July statistics created a stir in copper circles when it became known that world refined stocks declined 26,600 tons and both domestic and foreign consumption expanded. Domestic stocks dropped more than 10,000 tons to 218,705 tons. Domestic refined shipments rose more than 2500 tons to 59,807 tons, and production decreased over 6000 tons to a total of 53,985 tons. Circulation of the figures had the effect of stimulating inquiry by domestic users despite large commitments prior to the recent price advance. Subsequently, however, a leading domestic producer announced an increase in production effective Dec. 1, and the implications behind this action are in restraint of other bullish factors. Export demand remains brisk, though prices are down a bit from the peak of a few days ago. Today's quotation is about 9.70c. a lb., c. i. f., European basis. Home business is livelier, with sales yesterday of 1506 tons and 16,683 tons for the month to date. The price is firm at 9.75c., Connecticut, but temporarily at least there is less appearance of a rise in the offing.

Lead

The situation in lead continues to reflect an unusual rate of consumption by the domestic industry. Buying completed its seventh above-normal week in the period just ended, and there is no indication of a let-down at present. It looks as if both August and September will be 40,000-ton months from a shipments angle. Moreover, producers' stocks over the latter months of the year should show a steady reduction. On this basis, prices remain firm and unchanged at 4.45c. a lb., St. Louis, and 4.60c., New York.

Zinc

The undertone in this market remains quiet, while the price, as heretofore, is firm and unchanged at 4.80c. a lb., East St. Louis. About 2400 tons of prime Western grade was sold last week, against indicated shipments of 5600 tons. No especial feature developed. Declines in copper on the London Metal Exchange have caused the foreign zinc equivalent sympathetically to ease, but domestic sellers consider the decline too slight to be important.

Tin

Conditions are unchanged from a week ago. The market is marking time and showing no trend to speak of. Lack of business has caused prices gradually to go down, and spot Straits tin at New York is quotable today at about 42.00c. a lb., the same as yesterday. The present dullness is blamed upon the fact that consumers are well covered on their requirements, and unless some news develops to stimulate more interest in commitments, conditions are not likely to alter appreciably in the immediate future. The International Committee has definitely announced that it will not again take up the subject of restrictions with Siam until after Sept. 18 at the earliest. London prices this morning were £181 for standard spot and £178 for futures. The Eastern quotation was £181 2s. 6d.

Ingot Brass and Bronze

The average prices received by members of the Non-Ferrous Ingot Metal Institute during the 28 days ended Aug. 7, for commercial 80-10-10 and commercial 85-5-5-5 brass ingots were 10.809c. and 9.286c. a lb. respectively. The institute's members had 25,289 net tons of unfilled orders for brass, bronze ingots on their books Aug. 1.

The Week's Prices. Cents Per Pound for Early Delivery

	Aug. 12	Aug. 13	Aug. 14	Aug. 15	Aug. 17	Aug. 18
Electrolytic copper, Conn.*	9.75	9.75	9.75	9.75	9.75	9.75
Lake copper, N. Y.	9.87½	9.87½	9.87½	9.87½	9.87½	9.87½
Straits tin, Spot, New York	42.75	42.50	42.37½	....	42.00	42.00
Zinc, East St. Louis	4.80	4.80	4.80	4.80	4.80	4.80
Zinc, New York†	5.17½	5.17½	5.17½	5.17½	5.17½	5.17½
Lead, St. Louis	4.45	4.45	4.45	4.45	4.45	4.45
Lead, New York	4.60	4.60	4.60	4.60	4.60	4.60

*Delivered Connecticut Valley; price ¼c. lower delivered in New York.
†Includes emergency freight charge.

Aluminum, virgin 99 per cent plus, 19.00c.-21.00c. a lb. delivered.
Aluminum, No. 12 remelt No. 2 standard, in carloads, 17.00c. lb., delivered.
Nickel, electrolytic, 35c. to 36c. a lb. base refinery, in lots of 2 tons or more.
Antimony, Asiatic, 12.50c. a lb., New York.
Quicksilver, $74.00 to $75.00 per flask of 76 lb.
Brass ingots, commercial 85-5-5-5, 9.25c. a lb., delivered; in Middle West ¼c. a lb. is added on orders for less than 40,000 lb.

From New York Warehouse

Delivered Prices, Base per Lb.

Tin, Straits pig	43.00c. to 44.00c.
Tin, bar	45.00c. to 46.00c.
Copper, Lake	10.75c. to 11.75c.
Copper, electrolytic	10.75c. to 11.75c.
Copper, castings	10.50c. to 11.50c.
*Copper sheets, hot-rolled	17.25c.
*High brass sheets	15.37½c.
*Seamless brass tubes	17.62½c.
*Seamless copper tubes	17.75c.
*Brass rods	13.37½c.
Zinc, slabs	5.75c. to 6.75c.
Zinc, sheets (No. 9), casks, 1200 lb. and over	10.25c.
Lead, American pig	5.10c. to 6.10c.
Lead, bar	6.10c. to 7.10c.
Lead, Sheets, cut	8.25c.
Antimony, Asiatic	13.00c. to 14.00c.
Alum., virgin, 99 per cent plus	23.30c.
Alum., No. 1 for remelting, 98 to 99 per cent	18.50c. to 20.00c.
Solder, ½ and ½	28.50c. to 29.50c.
Babbitt metal, commercial grades	25.00c. to 60.00c.

*These prices are also for delivery from Chicago and Cleveland warehouses.

From Cleveland Warehouse

Delivered Prices Per Lb.

Tin, Straits pig	45.50c.
Tin, bar	47.50c.
Copper, Lake	10.50c. to 10.75c.
Copper, electrolytic	10.50c. to 10.75c.
Copper, castings	10.25c. to 10.50c.
Zinc, slabs	6.50c. to 6.75c.
Lead, American pig	5.20c. to 6.50c.
Lead, bar	8.50c.
Antimony, Asiatic	15.00c.
Babbitt metal, medium grade	19.00c.
Babbitt metal, high grade	49.50c.
Solder, ½ and ½	24.75c.

Old Metals, Per Lb., New York

Buying prices are paid by dealers for miscellaneous lots from smaller accumulators, and selling prices are those charged to consumers after the metal has been prepared for their uses. (All prices are nominal.)

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible	7.50c.	8.25c.
Copper, hvy. and wire	7.37½c.	7.87½c.
Copper, light and bottoms	6.37½c.	6.87½c.
Brass, heavy	4.25c.	4.87½c.
Brass, light	3.50c.	4.25c.
Hvy. machine composition	6.25c.	6.75c.
No. 1 yel. brass turnings	5.25c.	5.75c.
No. 1 red brass or compos. turnings	5.37½c.	6.37½c.
Lead, heavy	3.62½c.	4.00c.
Sheet aluminum	13.25c.	14.75c.
Zinc	2.50c.	2.87½c.
Cast aluminum	12.12½c.	13.25c.

IRON AND STEEL SCRAP

. . . Scrap composite at $15.42 is highest since Nov. 14, 1929.

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. . . Sellers prophesy additional sales at even higher prices.

PRICES all over the country continue to bound upward. In some cases these rises are being supported by actual sales although in some districts the rises are purely in anticipation of future sales or result from efforts of brokers to cover short sales. It is evident, however, that current price levels are still not sufficiently high to bring out all the scrap the market can absorb. Nevertheless, steel is now being attracted away from the export market in New England and there are evidences in the East that new sales may soon be made at price levels not far above present quotations. Furthermore, some mills are considering the use of more pig iron in their melts, which would be a trend tending to retard the present violent upward price movement.

The current scrap composite of $15.42 a gross ton compares with $12.75 at mid-June of this year, at which time steel operations were practically at today's level. The current composite price is the highest since Nov. 7, 1929, at which time the composite stood at $15.50. During the week of Nov. 7, 1929, steel operations were somewhat higher and pig iron prices somewhat lower than they are today.

Pittsburgh

A fair tonnage of No. 1 steel purchased at $16.50 during the past week has defined the market. Brokers are unable to pick up much steel at $15.75 and the majority are paying $16 for odd cars. The market persists in maintaining a strong tone with scrap comparatively scarce in this district. Dealers are still short on orders placed some time ago and are covering as rapidly as possible. The present Pittsburgh price is still too low to attract scrap from the East and offerings in the Youngstown district are high enough to prevent material coming in from that direction. Continuation of present ingot operations and shortages overhanging the market preclude any weakness in the near future. Good demand and a comparative scarcity of specialties have brought about an exceedingly firm situation with regard to these items.

Cleveland

Prices have again advanced 50c. a ton on steel making and blast furnace grades and the market is very firm. However, there have been no mill purchases. The local price situation at present is controlled by the Youngstown district, for shipment to which brokers are covering against outstanding orders and where steel making grades have also advanced 50c. a ton. Dealers are offering up to $10 for blast furnace scrap and they expect the 50c. advance will bring out an increase in the supply which heretofore has been very scarce.

Chicago

Prices still are soaring and heavy melting steel has reached a new high at $16. The last mill sale was at $15.50, but brokers are trading freely at $15.85 and the last railroad sale brought $16.10, delivered. Scrap is moving to Chicago from Texas and Canada and still there is no oversupply. Mills are freely taking all that is moved to their tracks. Users are scrambling for specialties, and many of the sales are marking new highs for the current rise.

Philadelphia

The market here has moved fractionally higher. However, it is for the most part untested. On the one hand, brokers are attempting to talk No. 1 steel up to $16, and, on the other hand, purchasing agents are resisting any effort to go beyond the $14 level. Currently, brokers seem to be in the preferred position as they have the material and steel mills are in need of scrap. Several new orders will probably mature over the next fortnight, in which case the price status of important grades will be clarified. Brokers are now paying $14 freely for No. 1 deliveries at four district points and $13 for No. 2 at three points. Bethlehem has paid as high as $14 for No. 1, delivered district plants, and nearby foundries have paid $16 for cupola cast and near $18 for steel wheels. A Baltimore seller has disposed of 15,000 tons of No. 1 for September shipment abroad at $14.50, on the boat.

Buffalo

The market is very strong. About 5000 tons of No. 2 was purchased during the week at $13.50 by a mill which had purchased a few weeks ago at $12.25. The largest consumer is offering $14 for No. 1 steel, but this last transaction establishes the market on the basis of $14.50 to $15. Material is very scarce at present prices.

St. Louis

Based on prices paid by dealers for railroad lists sold last week, quotations on most grades here were advanced sharply this week. Dealers report a marked shortage, while further strength is given the market by the belief that mills will come into the market sometime this week.

Detroit

The market continues very strong. Mill buying locally and in the Youngstown and Pittsburgh areas is boosting prices to new highs. Because of temporary shut-downs in many automobile plants it is difficult to draw scrap out at any price, and dealers are forced to remedy their short positions on a rapidly rising market.

New York

Although the price structure here is unaltered, the undertone is still decidedly strong. Brokers report that current offers are bringing in fair quantities of scrap. However, if the domestic market is sustained and new export demand develops, it is likely that the price list will show further advances. Heavy melting steel is bringing attractive prices at northern Jersey points for delivery to four eastern Pennsylvania consumers, and steel and cast grades are being loaded steadily on barges for shipment abroad. Italy is not interested in the present market, and neither Japan nor England is willing to better $12.75 f.a.s.

Boston

Prices for No. 1 and 2 steel, Pittsburgh delivery, although largely nominal, advanced 50c. and thereby outdistanced quotations for export delivery. This situation, if maintained, may cut down foreign deliveries. At the moment, however, exporters are obtaining requirements, although they report offers of material have slowed up. Japan has contracted for another large tonnage, which will begin loading this week.

Cincinnati

Some mill buying the past week stimulated market feeling that the jam has loosened. While amounts were undisclosed, it is understood ordering was in greater quantity than for urgency coverage. Dealers, fearful of short position, bid the market upward, bringing a stronger undertone. On the other hand, prices on current purchases were not high enough to reflect mill acceptance of present conditions and this contributed a shred of suspicion that the current market may be slightly fictitious.

Iron and Steel Scrap Prices

PITTSBURGH

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$16.00 to $16.50
No. 2 hvy. mltng. steel.	14.75 to 15.25
No. 2 RR. wrought	16.00 to 16.50
Scrap rails	16.00 to 16.50
Rails, 3 ft. and under	17.25 to 17.75
Comp. sheet steel	16.00 to 16.50
Hand bundled sheets	15.00 to 15.50
Hvy. steel axle turn.	14.50 to 15.00
Machine shop turn.	10.50 to 11.00
Short shov. turn.	10.50 to 11.00
Mixed bor. & turn.	10.00 to 10.50
Cast iron borings	10.50 to 11.00
Cast iron carwheels	15.00 to 15.50
Hvy. breakable cast	13.00 to 13.50
No. 1 cast	15.50 to 16.00
RR. knuckles & cplrs.	18.50 to 19.00
Rail coil & leaf springs	18.50 to 19.00
Rolled steel wheels	18.50 to 19.00
Low phos. billet crops.	19.00 to 19.50
Low phos. sh. bar	18.50 to 19.00
Low phos. punchings.	18.25 to 18.75
Low phos. plate scrap.	18.00 to 18.50
Steel car axles	16.50 to 17.00

CLEVELAND

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$14.50 to $15.00
No. 2 hvy. mltng. steel	13.50 to 14.00
Comp. sheet steel	14.00 to 14.50
Light bund. stampings	10.00 to 10.50
Drop forge flashings	13.00 to 13.50
Machine shop turn.	9.00 to 9.50
Short shov. turn.	9.50 to 10.00
No. 1 busheling	13.00 to 13.50
Steel axle turnings	10.00 to 10.50
Low phos. billet crops	18.00 to 18.50
Cast iron borings	9.50 to 10.00
Mixed bor. & turn.	9.50 to 10.00
No. 2 busheling	9.50 to 10.00
No. 1 cast	15.00 to 15.50
Railroad grate bars	8.00 to 8.50
Stove plate	9.00 to 9.50
Rails under 3 ft.	16.00 to 16.50
Rails for rolling	16.50 to 17.00
Railroad malleable	17.00 to 17.50
Cast iron carwheels	.... 15.50

PHILADELPHIA

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$14.00 to $14.50
No. 2 hvy. mltng. steel.	13.00 to 13.50
Hydraulic bund., new	14.00 to 14.50
Hydraulic bund., old	11.00 to 11.50
Steel rails for rolling	15.50 to 16.00
Cast iron carwheels	15.50 to 16.00
Hvy. breakable cast	15.00 to 15.50
No. 1 cast	15.50 to 16.00
Stove plate (steel wks)	11.50 to 12.00
Railroad malleable	.... 16.50
Machine shop turn.	.... 9.00
No. 1 blast furnace	7.50 to 8.00
Cast borings	7.50 to 8.00
Heavy axle turnings	12.00 to 12.50
No. 1 low phos. hvy.	17.00 to 17.50
Couplers & knuckles	17.00 to 17.50
Rolled steel wheels	17.00 to 17.50
Steel axles	17.00 to 17.50
Shafting	19.50 to 20.00
No. 1 RR. wrought	14.50 to 15.00
Spec. iron & steel pipe	12.50 to 13.00
Bundled sheets	12.00 to 12.50
No. 1 forge fire	13.50 to 14.00
Cast borings (chem.)	10.50 to 13.00

CHICAGO

Delivered to Chicago district consumers:

	Per Gross Ton
Hvy. mltng. steel	$15.50 to $16.00
Auto. hvy. mltng. steel.	13.50 to 14.00
Shoveling steel	15.50 to 16.00
Hydraul. comp. sheets.	13.50 to 14.00
Drop forge flashings	13.00 to 13.50
No. 1 busheling	13.75 to 14.25
Rolled carwheels	17.50 to 18.00
Railroad tires cut	17.50 to 18.00
Railroad leaf springs	17.00 to 17.50
Axle turnings	14.50 to 15.00
Steel coup. & knuckles	17.50 to 18.00
Coil springs	18.00 to 18.50
Axle turn. (elec.)	14.25 to 14.75
Low phos. punchings	17.50 to 18.00
Low phos. plates, 12 in. and under	17.50 to 18.00
Cast iron borings	8.00 to 8.50
Short shov. turnings	8.50 to 9.00
Machine shop turn.	6.75 to 7.25
Rerolling rails	16.00 to 16.50
Steel rails under 3 ft.	17.00 to 17.50
Steel rails under 2 ft.	18.00 to 18.50
Angle bars, steel	17.00 to 17.50
Cast iron carwheels	15.00 to 15.50
Railroad malleable	17.50 to 18.00
Agric. malleable	14.00 to 14.50
	Per Net Ton
Iron car axles	$18.50 to $19.00
Steel car axles	17.75 to 18.25
No. 1 RR. wrought	13.75 to 14.25
No. 2 RR. wrought	$13.75 to $14.25
No. 2 busheling, old	6.00 to 6.50
Locomotive tires	12.50 to 13.00
Pipes and flues	8.50 to 9.00
No. 1 machinery cast	13.50 to 14.00
Clean auto. cast	12.50 to 13.00
No. 1 railroad cast	12.50 to 13.00
No. 1 agric. cast	11.00 to 11.50
Stove plate	8.50 to 9.00
Grate bars	9.50 to 10.00
Brake shoes	10.25 to 10.75

BUFFALO

Per gross ton, f.o.b. consumers' plants:

No. 1 hvy. mltng. steel.	$14.00 to $14.50
No. 2 hvy. mltng. steel.	12.50 to 13.00
Scrap rails	12.00 to 12.50
New hy. b'ndled sheets	12.50 to 13.00
Old hydraul. bundles	12.50 to 13.00
Drop forge flashings	12.50 to 13.00
No. 1 busheling	12.50 to 13.00
Hvy. axle turnings	10.50 to 11.00
Machine shop turn.	7.00 to 7.50
Knuckles & couplers	15.00 to 15.50
Coil & leaf springs	15.00 to 15.50
Rolled steel wheels	15.00 to 15.50
Low phos. billet crops.	15.50 to 16.00
Short shov. turnings	9.00 to 9.50
Mixed bor. & turn.	8.00 to 8.50
Cast iron borings	8.00 to 8.50
No. 2 bushelings	.... 6.50
Steel car axles	14.50 to 15.00
Iron axles	12.00 to 12.50
No. 1 machinery cast	13.50 to 14.00
No. 1 cupola cast	13.00 to 13.50
Stove plate	10.50 to 11.00
Steel rails under 3 ft.	15.75 to 16.25
Cast iron carwheels	11.50 to 12.00
Railroad malleable	15.00 to 15.50
Chemical borings	9.00 to 9.50

BIRMINGHAM

Per gross ton delivered to consumer:

Hvy. melting steel	$11.00 to $11.50
Scrap steel rails	11.50 to 12.00
Short shov. turnings	.... 7.00
Stove plates	.... 8.00
Steel axles	12.00 to 12.50
Iron axles	12.00 to 12.50
No. 1 RR. wrought	8.50 to 9.00
Rails for rolling	12.50 to 13.00
No. 1 cast	12.00 to 12.50
Tramcar wheels	11.00 to 12.00

ST. LOUIS

Dealers' buying prices per gross ton delivered to consumer:

Selected hvy. steel	$13.75 to $14.25
No. 1 hvy. melting	13.25 to 13.75
No. 2 hvy. melting	11.00 to 11.50
No. 1 locomotive tires	12.00 to 12.50
Misc. stand.-sec. rails	14.00 to 14.75
Railroad springs	15.00 to 15.50
Bundled sheets	9.50 to 10.00
No. 2 RR. wrought	12.25 to 12.75
No. 1 busheling	8.50 to 9.00
Cast bor. & turn.	4.00 to 4.50
Rails for rolling	15.00 to 15.50
Machine shop turn.	4.00 to 4.50
Heavy turnings	9.25 to 9.75
Steel car axles	16.00 to 16.50
Iron car axles	17.00 to 17.50
No. 1 RR. wrought	11.00 to 11.50
Steel rails under 3 ft.	15.75 to 16.25
Steel angle bars	15.00 to 15.50
Cast iron carwheels	11.75 to 12.25
No. 1 machinery cast.	10.75 to 11.25
Railroad malleable	14.50 to 15.00
No. 1 railroad cast	11.00 to 11.50
Stove plate	7.50 to 8.00
Agricul. malleable	12.50 to 13.00
Grate bars	9.00 to 9.50
Brake shoes	10.00 to 10.50

CINCINNATI

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	$11.75 to $12.25
No. 2 hvy. mltng. steel.	9.25 to 9.75
Scrap rails for mltng.	12.25 to 12.75
Loose sheet clippings	6.50 to 7.00
Bundled sheets	9.00 to 9.50
Cast iron borings	5.00 to 5.50
Machine shop turn.	5.75 to 6.25
No. 1 busheling	9.50 to 10.00
No. 2 busheling	5.25 to 5.75
Rails for rolling	12.50 to 13.00
No. 1 locomotive tires	10.50 to 11.00
Short rails	15.00 to 15.50
Cast iron carwheels	12.00 to 12.50
No. 1 machinery cast	12.50 to 13.00
No. 1 railroad cast	11.75 to 12.25
Burnt cast	8.25 to 8.75
Stove plates	8.25 to 8.75
Agricult. malleable	10.75 to 11.25
Railroad malleable	13.00 to 13.50

DETROIT

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	$12.00 to $12.50
No. 2 hvy. mltng. steel.	11.00 to 11.50
Boring and turnings	7.50 to 8.00
Long turnings	$7.25 to $7.75
Short shov. turnings	8.25 to 8.75
No. 1 machinery cast	14.50 to 15.00
Automotive cast	14.50 to 15.00
Hydraul. comp. sheets.	12.50 to 13.00
Stove plates	8.00 to 8.50
New factory bushel	11.25 to 11.75
Old No. 2 busheling	7.00 to 7.50
Sheet clippings	9.25 to 9.75
Flashings	10.75 to 11.25
Low phos. plate scrap	12.50 to 13.00

CANADA

Dealers' buying prices per gross ton:

	Toronto	Montreal
Hvy. melting steel	$7.50	$7.00
Rails, scrap	8.50	8.00
Machine shop turn.	4.00	4.00
Boiler plate	7.00	6.00
Hvy. axle turnings	4.50	4.00
Cast borings	5.00	4.50
Steel borings	4.00	4.00
Wrought pipe	4.00	4.00
Steel axles	8.50	9.00
Axles, wrought iron	9.00	9.50
No. 1 machinery cast	11.50	11.00
Stove plate	7.50	7.00
Standard carwheels	11.00	10.50
Malleable	7.00	7.00
Shoveling steel	6.50	6.00
Bushelings	6.00	5.50
Compressed sheets	6.50	6.00

YOUNGSTOWN

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$15.50 to $16.00
Hydraulic bundles	15.00 to 15.50
Machine shop turn.	11.25 to 11.75

NEW YORK

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	$9.75 to $10.25
No. 2 hvy. mltng. steel.	8.75 to 9.25
Hvy. breakable cast.	10.00 to 10.25
No. 1 machinery cast.	10.25 to 10.75
No. 2 cast	8.75 to 9.25
Stove plate	7.75 to 8.00
Steel car axles	14.00 to 15.00
Shafting	14.50 to 15.00
No. 1 RR. wrought	9.50 to 10.00
No. 1 wrought long	9.00 to 9.50
Spec. iron & steel pipe	9.00 to 9.50
Forge fire	8.00 to 8.50
Rails for rolling	11.00 to 11.50
Short shov. turnings	4.50 to 5.00
Machine shop turn.	4.50 to 5.00
Cast borings	5.00 to 6.00
No. 1 blast furnace	4.00 to 5.00
Cast borings (chem.)	10.00 to 11.00
Unprepar. yard scrap.	5.50 to 6.00

Per gross ton, delivered local foundries:

No. 1 machn. cast	$12.50 to $13.00
No. 1 hvy. cast cupola.	10.00 to 11.00
No. 2 cast	8.50 to 9.00

Add 25c. to 50c. to above quotations to secure North Jersey prices.

BOSTON

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	$9.90 to $10.15
Scrap rails	9.90 to 10.15
No. 2 steel	8.90 to 9.15
Breakable cast	9.50 to 9.75
Machine shop turn.	.... 4.40
Bund. skeleton long	8.40 to 8.75
Shafting	14.00 to 14.25
Cast bor. chemical	5.50 to 7.00

Per gross ton delivered consumers' yards:

Textile cast	$11.50 to $12.00
No. 1 machine cast	11.50 to 12.00
Stove plate	.... 9.00

EXPORT

Brokers' buying prices per gross ton:

New York, delivered alongside barges

No. 1 hvy. mltng. steel.	$10.50 to $10.75
No. 2 hvy. mltng. steel.	9.50 to 9.75
No. 2 cast	8.50 to 8.75
Stove plate	7.50 to 7.75
Rails (scrap)	10.50 to 11.00

Boston, on cars at Army Base or Mystic Wharf

No. 1 hvy. mltng. steel.	.... $11.50
No. 2 hvy. mltng. steel.	.... 10.50
Rails (scrap)	$11.50 to 11.75
Stove plate	.... 7.75
Machine shop turn.	.... 5.50

New Orleans, on cars at Stuyvesant Dock

No. 1 hvy. mltng. steel.	$10.00 to $10.50
No. 2 hvy. mltng. steel.	9.00 to 9.50

Los Angeles, on cars or trucks at local piers

No. 1 hvy. mltng. steel.	$10.50 to $11.00
Compressed bundles	8.50 to 9.00

PRICES ON FINISHED AND SEMI-FINISHED IRON AND STEEL

SEMI-FINISHED STEEL

Billets, Blooms and Slabs

F.o.b. Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham. Prices at Duluth are $2 a ton higher, and delivered Detroit $3 higher.

	Per Gross Ton
Rerolling	$30.00
Forging quality	37.00

Sheet Bars

F.o.b. Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point, Md.

	Per Gross Ton
Open-hearth or Bessemer	$30.00

Skelp

F.o.b. Pittsburgh, Chicago, Youngstown, Buffalo, Coatesvile, Pa., Sparrows Point, Md.

	Per Lb.
Grooved, universal and sheared	1.86c.

Wire Rods

(Nos. 4 and 5)

	Per Gross Ton
F.o.b. Pittsburgh or Cleveland	$38.00
F.o.b. Chicago, Youngstown or Anderson, Ind.	39.00
F.o.b. Worcester, Mass.	40.00
F.o.b. Birmingham	41.00
F.o.b. San Francisco	47.00
F.o.b. Galveston	44.00

BARS, PLATES, SHAPES

Iron and Steel Bars

Soft Steel

	Base per Lb.
F.o.b. Pittsburgh	1.95c.
F.o.b. Chicago or Gary	2.00c.
F.o.b. Duluth	2.10c.
Del'd Detroit	2.10c.
F.o.b. Cleveland	2.00c.
F.o.b. Buffalo	2.05c.
Del'd Philadelphia	2.26c.
Del'd New York	2.30c.
F.o.b. Birmingham	2.10c.
F.o.b. cars dock Gulf ports	2.35c.
F.o.b. cars Pacific ports	2.50c.

Rail Steel

(For merchant trade)

F.o.b. Pittsburgh	1.80c.
F.o.b. Cleveland, Chicago, Gary or Moline, Ill.	1.85c.
F.o.b. Buffalo	1.90c.
F.o.b. Birmingham	1.95c.
F.o.b. cars dock Gulf ports	2.20c.
F.o.b. cars dock Pacific ports	2.35c.

Billet Steel Reinforcing

(Straight lengths as quoted by distributors)

F.o.b. Pittsburgh	2.05c.
F.o.b. Buffalo, Cleveland, Youngstown, Chicago, Gary or Birmingham	2.10c.
Del'd Detroit	2.20c.
F.o.b. cars dock Gulf ports	2.45c.
F.o.b. cars dock Pacific ports	2.45c.

Rail Steel Reinforcing

(Straight lengths as quoted by distributors)

F.o.b. Pittsburgh	1.90c.
F.o.b. Buffalo, Cleveland, Youngstown, Chicago, Gary or Birmingham	1.95c.
F.o.b. cars dock Gulf ports	2.30c.
F.o.b. cars dock Pacific ports	2.30c.

Iron

F.o.b. Chicago	1.80c.
F.o.b. Pittsburgh (refined)	2.10c.
Delivered New York	2.05c.
Delivered Philadelphia	2.10c.

Cold Finished Bars and Shafting*

	Base per Lb.
F.o.b. Pittsburgh	2.25c.
F.o.b. Cleveland, Chicago and Gary	2.30c.
F.o.b. Buffalo	2.35c.
Del'd Detroit	2.40c.
Del'd eastern Michigan	2.45c.

*In quantities of 10,000 to 19,999 lb.

Plates

	Base per Lb.
F.o.b. Pittsburgh	1.90c.
F.o.b. Chicago or Gary	1.95c.
Del'd Cleveland	2.095c.
F.o.b. Coatesville or Spar. Pt.	2.00c.
Del'd Philadelphia	2.09c.
Del'd New York	2.19c.
F.o.b. Birmingham	2.05c.
F.o.b. cars dock Gulf ports	2.30c.
F.o.b. cars dock Pacific ports	2.45c.
Wrought iron plates, f.o.b. Pittsburgh	3.20c.

Floor Plates

F.o.b. Pittsburgh	3.45c.
F.o.b. Chicago	3.50c.
F.o.b. Coatesville	3.55c.
F.o.b. cars dock Gulf ports	3.85c.
F.o.b. cars dock Pacific ports	4.00c.

Structural Shapes

	Base per Lb.
F.o.b. Pittsburgh	1.90c.
F.o.b. Chicago	1.95c.
Del'd Cleveland	2.095c.
F.o.b. Buffalo or Bethlehem	2.00c.
Del'd Philadelphia	2.115c.
Del'd New York	2.1625c.
F.o.b. Birmingham (standard)	2.05c.
F.o.b. cars dock Gulf ports	2.30c.
F.o.b. cars dock Pacific ports	2.45c.

Steel Sheet Piling

	Base per Lb.
F.o.b. Pittsburgh	2.25c.
F.o.b. Chicago or Buffalo	2.35c.
F.o.b. cars dock Gulf or Pacific Coast ports	2.70c.

RAILS AND TRACK SUPPLIES

F.o.b. Mill

Standard rails, heavier than 60 lb. per gross ton	$36.37½
Angle bars, per 100 lb.	2.55

F.o.b. Code Basing Points

Light rails (from billets) per gross ton	$35.00
Light rails (from rail steel) per gross ton	34.00

	Base per 100 Lb.
Spikes	2.60
Tie plates, steel	1.90
Tie plates, Pacific Coast ports	2.00
Track bolts, to steam railroads	3.60
Track bolts, to jobbers, all sizes (per 100 counts) 70 per cent off list	

Basing points on light rails are Pittsburgh, Chicago and Birmingham; on spikes and tie plates, Pittsburgh, Chicago, Buffalo, Portsmouth, Ohio, Weirton, W. Va., St. Louis, Kansas City, Minnequa, Colo., Birmingham and Pacific Coast ports; on tie plates alone, Steelton, Pa.; on spikes alone, Cleveland, Youngstown, Lebanon, Pa., Columbia, Pa., Richmond, Va.

SHEETS, STRIP, TIN PLATE, TERNE PLATE

Sheets

Hot Rolled

	Base per Lb.
No. 10, f.o.b. Pittsburgh	1.95c.
No. 10, f.o.b. Gary	2.05c.
No. 10, de'd Detroit	2.15c.
No. 10, del'd Philadelphia	2.26c.
No. 10, f.o.b. Birmingham	2.10c.
No. 10, f.o.b. cars dock Pacific ports	2.50c.

Hot-Rolled Annealed

No. 24, f.o.b. Pittsburgh	2.50c.
No. 24, f.o.b. Gary	2.60c.
No. 24, del'd Detroit	2.70c.
No. 24, del'd Philadelphia	2.81c.
No. 24, f.o.b. Birmingham	2.65c.
No. 24, f.o.b. cars dock Pacific ports	3.15c.
No. 24, wrought iron, Pittsburgh	4.30c.

Heavy Cold-Rolled

No. 10 gage, f.o.b. Pittsburgh	2.60c.
No. 10 gage, f.o.b. Gary	2.70c.
No. 10 gage, f.o.b. Detroit	2.80c.
No. 10 gage, del'd Philadelphia	2.91c.
No. 10 gage, f.o.b. Birmingham	2.75c.
No. 10 gage, f.o.b. cars dock Pacific ports	3.20c.

Light Cold-Rolled

No. 20 gage, f.o.b. Pittsburgh	3.05c.
No. 20 gage, f.o.b. Gary	3.15c.
No. 20 gage, del'd Detroit	3.25c.
No. 20 gage, del'd Philadelphia	3.36c.
No. 20 gage, f.o.b. Birmingham	3.20c.
No. 20 f.o.b. cars dock Pacific ports	3.60c.

Galvanized Sheets

No. 24 gage, f.o.b. Pittsburgh	3.20c.
No. 24, f.o.b. Gary	3.30c.
No. 24, del'd Philadelphia	3.51c.
No. 24, f.o.b. Birmingham	3.35c.
No. 24, f.o.b. cars dock Pacific ports	3.80c.
No. 24, wrought iron, Pittsburgh	4.95c.

Electrical Sheets

(F.o.b. Pittsburgh)

	Base per Lb.
Field grade	2.90c.
Armature	3.25c.
Electrical	3.75c.
Special Motor	4.80c.
Special Dynamo	5.50c.
Transformer	6.00c.
Transformer Special	7.00c.
Transformer Extra Special	7.50c.

Silicon Strip in coils—Sheet price plus silicon sheet extra width extras, plus 25c. per 100 lb. for coils.

Long Ternes

No. 24, unassorted 8-lb. coating f.o.b. Pittsburgh	3.50c.
F.o.b. Gary	3.60c.
F.o.b. cars dock Pacific ports	4.20c.

Vitreous Enameling Stock

No. 20, f.o.b. Pittsburgh	3.05c.
No. 20, f.o.b. Gary	3.15c.
No. 20, f.o.b. Birmingham	3.65c.
No. 20, f.o.b. cars dock Pacific ports	3.65c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	2.75c.
No. 28, Gary	2.85c.
No. 28, cars dock Pacific ports	3.35c.

Tin Plate

	Base per Box
Standard cokes, f.o.b. Pittsburgh district mill	$5.25
Standard cokes, f.o.b. Gary	5.35
Standard cokes, f.o.b. cars dock Pacific ports	5.90

Terne Plate

(F.o.b. Pittsburgh)

(Per Package, 20 x 28 in.)

8-lb. coating I.C.	$10.00
15-lb. coating I.C.	12.00
20-lb. coating I.C.	13.00
25-lb. coating I.C.	14.00
30-lb. coating I.C.	15.25
40-lb. coating I.C.	17.50

Hot-Rolled Hoops, Bands, Strips and Flats under ¼ In.

	Base per Lb.
All widths up to 24 in., P'gh.	1.95c.
All widths up to 24 in., Chicago	2.05c.
All widths up to 24 in., del'd Detroit	2.15c.
All widths up to 24 in., Birmingham	2.10c.
Cooperage stock, Pittsburgh	2.05c.
Cooperage stock, Chicago	2.15c.

Cold-Rolled Strips*

	Base per Lb.
F.o.b. Pittsburgh	2.60c.
F.o.b. Cleveland	2.60c.
Del'd Chicago	2.895c.
F.o.b. Worcester	2.80c.

* Carbon 0.25 and less.

Cold-Rolled Spring Steel

	Pittsburgh and Cleveland	Worcester
Carbon 0.25-0.50%	2.60c.	2.80c.
Carbon .51- .75	3.45c.	3.65c.
Carbon .76-1.00	4.95c.	5.15c.
Carbon Over 1.00	6.50c.	6.70c.

Fender Stock

No. 14, Pittsburgh or Cleveland	2.90c.
No. 14, Worcester	3.30c.
No. 20, Pittsburgh or Cleveland	3.30c.
No. 20, Worcester	3.70c.

WIRE PRODUCTS

(Carload lots, f.o.b. Pittsburgh and Cleveland.)

To Manufacturing Trade

	Per Lb.
Bright wire	2.40c.
Spring wire	3.05c.

Chicago prices on products sold to the manufacturing trade are $1 a ton above Pittsburgh or Cleveland. Worcester and Duluth prices are $2 a ton above, Birmingham $3 above, and Pacific Coast prices $9 a ton above Pittsburgh or Cleveland.

To the Trade

	Base per Keg
Standard wire nails	$2.10
Smooth coated nails	2.10

	Base per 100 Lb.
Annealed fence wire	$2.65
Galvanized fence wire	3.00
Polished staples	2.80
Galvanized staples	3.05
Barbed wire, galvanized	2.60
Twisted barbless wire	2.60
Woven wire fence, base column	58
Single loop bale ties, base column	51

Chicago and Anderson, Ind., mill prices are $1 a ton over Pittsburgh base (on all products except woven wire fence, for which the Chicago price is $2 above Pittsburgh); Duluth, Minn., mill prices are $2 a ton over Pittsburgh except for woven wire fence, which is $3 over Pittsburgh and Birmingham mill prices are $3 a ton over Pittsburgh.

On wire nails, barbed wire and staples, prices at Houston, Galveston and Corpus Christi, Tex., New Orleans, Lake Charles, La., and Mobile, Ala., are $6 a ton over Pittsburgh.

On nails, staples and barbed wire, prices of $6 a ton above Pittsburgh are also quoted at Beaumont and Orange, Tex.

STEEL AND WROUGHT IRON PIPE AND TUBING

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

F.o.b. Pittsburgh only on wrought iron pipe.

Butt Weld

Steel In.	Black	Galv.	*Wrought Iron* In.	Black	Galv.
⅛	57	37	⅛	+91½	+138
¼ to ⅜	60	44½	¼ & ⅜	+1½	+21½
½	64½	55	½	31½	15
¾	67½	59	¾	36½	20½
1 to 3	69½	61½	1 & 1¼	39½	25½
			1½	43½	28
			2	41½	26

Lap Weld

2	62	53½	2	37	22½
2½ to 3	65	56½	2½ to 3½	38	25
3½ to 6	67	58½	4 to 8	40	28½
7 & 8	66	56½	9 to 12	38	24½
9 & 10	65½	56			
11 & 12	64½	55			

Butt Weld, extra strong, plain ends

⅛	55½	42½	⅛	+13	+45½
¼ to ⅜	57½	46½	¼ & ⅜	+2½	+34½
½	62½	54½	½	32½	17½
¾	66½	58½	¾	37½	22½
1 to 3	68	61	1 to 2	43½	29

Lap Weld, extra strong, plain ends

2	60	52½	2	40	26
2½ to 3	64	56½	2½ to 4	45½	33
3½ to 6	67½	60	4½ to 6	45	33½
7 & 8	66½	57	7 & 8	46	33
9 & 10	65½	56	9 to 12	41½	30
11 & 12	64½	55			

On butt-weld and lap-weld steel pipe jobbers are granted a discount of 5%. On less-than-carload shipments prices are determined by adding 25 and 30% and the carload freight rate to the base card.

Note—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Seamless Steel Commercial Boiler Tubes and Locomotive Tubes

(Net base prices per 100 ft. f.o.b. Pittsburgh in carload lots)

		Cold Drawn	Hot Rolled
1 in. o.d.	13 B.W.G.	$ 8.60	$ 7.82
1¼ in. o.d.	13 B.W.G.	10.19	9.26
1½ in. o.d.	13 B.W.G.	11.26	10.23
1¾ in. o.d.	13 B.W.G.	12.81	11.64
2 in. o.d.	13 B.W.G.	14.35	13.04
2¼ in. o.d.	13 B.W.G.	16.00	14.54
2½ in. o.d.	12 B.W.G.	17.61	16.01
2¾ in. o.d.	12 B.W.G.	19.29	17.54
2¾ in. o.d.	12 B.W.G.	20.45	18.59
3 in. o.d.	12 B.W.G.	$21.45	$19.50
4½ in. o.d.	10 B.W.G.	41.08	37.35
3½ in. o.d.	11 B.W.G.	27.09	24.62
4 in. o.d.	10 B.W.G.	33.60	30.54
4½ in. o.d.	10 B.W.G.	41.08	37.35
5 in. o.d.	9 B.W.G.	51.56	46.87
6 in. o.d.	7 B.W.G.	79.15	71.90

Extra for less-carload quantities:

25,000 lb.	or ft.	to 39,999 lb.	or ft.	5 %
12,000 lb.	or ft.	to 24,999 lb.	or ft.	12½ %
6,000 lb.	or ft.	to 11,999 lb.	or ft.	25 %
2,000 lb.	or ft.	to 5,999 lb.	or ft.	35 %
Under 2,000 lb.	or ft.			50 %

CAST IRON WATER PIPE

Per Net Ton

*6-in. and larger, del'd Chicago.	$48.40
6-in. and larger, del'd New York	45.20
*6-in. and larger, Birmingham	40.00
6-in. and larger, f.o.b. dock, San Francisco or Los Angeles	48.00
F.o.b. dock, Seattle	48.50
F.o.b. dock, Seattle	51.50

Class "A" and gas pipe, $3 extra. 4-in. pipe is $3 a ton above 6-in.

* Prices for lots of less than 200 tons. For 200 tons and over, 6-in. and larger is $39, Birmingham, and $47.40, delivered Chicago and 4-in. pipe, $42, Birmingham, and $50.40 a ton, delivered Chicago.

BOLTS, NUTS, RIVETS, SET SCREWS

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)

Per Cent Off List

Machine and carriage bolts: ½ in. x 6 in. and smaller	70 and 10
Larger than ½ in.	70 and 5
Lag bolts	70 and 5
Plow bolts, Nos. 1, 2, 3, and 7 heads	70 and 5
Hot-pressed nuts, blank or tapped, square	70 and 5
Hot-pressed nuts, blank or tapped, hexagon	70 and 5
C.p.c. and t. square or hex. nuts, blank or tapped	70 and 5
Semi-finished hexagon nuts, U.S.S. and S.A.E., all sizes	60, 20 and 10
Stove bolts in packages, nuts attached	75
Stove bolts in packages, with nuts separate	75 and 5
Stove bolts in bulk	82½
Tire bolts	50 and 5

On stove bolts freight is allowed to destination on 200 lb. and over.

Large Rivets

(½-in. and larger)

Base per 100 Lb.

F.o.b. Pittsburgh or Cleveland	$3.05
F.o.b. Chicago or Birmingham	3.15

Small Rivets

(7/16-in. and smaller)

Per Cent Off List

F.o.b. Pittsburgh	70 and 5
F.o.b. Cleveland	70 and 5
F.o.b. Chicago and Birm'g'm.	70 and 5

Cap and Set Screws

(Freight allowed up to but not exceeding 65c. per 100 lbs. on lots of 200 lb. or more)

Per Cent Off List

Milled cap screws, 1 in. dia. and smaller	80, 10 and 10
Milled standard set screws, case hardened, 1 in. dia. and smaller	75
Milled headless set screws, cut thread ¾ in. and smaller	75
Upset hex. head cap screws U.S.S. or S.A.E. thread, 1 in and smaller	85
Upset set screws, cut and oval points	75 and 10
Milled studs	65 to 65 and 10

Alloy and Stainless Steel

Alloy Steel Blooms, Billets and Slabs

F.o.b. Pittsburgh, Chicago, Canton, Massillon, Buffalo, Bethlehem.

Base price, $51 a gross ton.

Alloy Steel Bars

F.o.b. Pittsburgh, Chicago, Buffalo, Bethlehem, Massillon or Canton.

Open-hearth grade, base	2.55c.
Delivered price at Detroit is	2.70c.

S.A.E. Series Numbers	Alloy Differential per 100 lb.
2000 (½% Nickel)	$0.25
2100 (2½% Nickel)	0.95
2300 (3½% Nickel)	1.50
2500 (5% Nickel)	2.25
3100 Nickel Chromium	0.55
3200 Nickel Chromium	1.35
3300 Nickel Chromium	3.80
3400 Nickel Chromium	3.20
4100 Chromium Molybdenum (0.15 to 0.25 Molybdenum)	0.50
4100 Chromium Molybdenum (0.25 to 0.40 Molybdenum)	0.70
4600 Nickel Molybdenum (0.20 to 0.30) Molybdenum (1.50 to 2.00 Nickel)	1.05
5100 Chromium Steel (0.60 to 0.90 Chromium)	0.35
5100 Chromium Steel (0.80 to 1.10 Chromium)	0.45
5100 Chromium Spring Steel	base
6100 Chromium Vanadium Bar	1.10c.
6100 Chromium Vanadium Spring Steel	$0.70
Chromium Nickel Vanadium	1.40
Carbon Vanadium	0.85

These prices are for hot-rolled steel bars. The differential for most grades in electric furnace steel is 50c. higher. The differential for cold-drawn bars ½c. per lb. higher with separate extras. Blooms, billets and slabs under 4x4 in. or equivalent are sold on the bar base. Slabs with a section area of 16 in. and 2½ in. thick or over take the billet base. Sections 4x4 in. to 10x10 in. or equivalent carry a gross ton price, which is the net price for bars for the same analysis. Larger sizes carry extras.

Alloy Cold-Finished Bars

F.o.b. Pittsburgh, Chicago, Gary, Cleveland or Buffalo, 3.05c. base per lb. Delivered Detroit, 3.20c.

STAINLESS STEEL No. 302

(17 to 19% Cr, 7 to 9% Ni, 0.08 to 0.20% C.)

(Base Prices f.o.b. Pittsburgh)

	Per Lb.
Forging billets	19.55c.
Bars	23c.
Plates	26c.
Structural shapes	23c.
Sheets	33c.
Hot-rolled strip	20¾c.
Cold-rolled strip	27c.
Drawn wire	23c.

TOOL STEEL

	Base per Lb.
High speed	57½c.
High carbon chrome	37c.
Oil hardening	21c.
Special	19c.
Extra	15¾c.
Regular	12½c.

Prices for warehouse distribution to all points on or East of Mississippi River are 2c. a lb. higher. West of Mississippi quotations are 3c. a lb. higher.

British and Continental

BRITISH

Per Gross Ton
f.o.b. United Kingdom Ports

Based on exchange rate as of Aug. 17

Ferromanganese, export	$45.24
Billets, open-hearth	29.57 to $30.83
Tin plate, per base box	4.77 to 4.80
Steel bars, open-hearth	39.58
Beams, open-hearth	38.33
Channels, open-hearth	39.58
Angles, open-hearth	38.33
Black sheets, No. 24 gage	51.42
Galvanized sheets, No. 24 gage	61.45

CONTINENTAL

Per Metric Ton, f.o.b. Continental Ports

Based on Exchange rate of Aug. 17

Billets, Thomas	$19.27
Wire rods, No. 5 B.W.G.	36.90
Steel bars, merchant	26.64
Sheet bars	19.68
Plate, ¼ in. and up	35.42
Plate, 3/16 in. and 5 mm.	34.85
Sheets, ⅛ in.	36.90
Beams, Thomas	25.58
Angles (Basic)	25.58
Hoops and strip base	32.79
Wire, plain, No. 8	44.03
Wire nails	47.15
Wire, barbed, 4 pt. No. 10 B.W.G.	71.74

IRON AND STEEL WAREHOUSE PRICES

PITTSBURGH

	Base per Lb.
Plates	3.25c.
Structural shapes	3.25c.
Soft steel bars and small shapes	3.05c.
Reinforcing steel bars	3.05c.
Cold-finished and screw stock:	
Rounds and hexagons	3.50c.
Squares and flats	3.50c.
Hot rolled strip incl. 3/16 in. thick, under 24 in. wide	3.30c.
Hoops	3.80c.
Hot-rolled annealed sheets (No. 24), 25 or more bundles	3.35c.
Galv. sheets (No. 24), 25 or more bundles	4.05c.
Hot-rolled sheets (No. 10)	3.05c.
Galv. corrug. sheets (No. 28), per square (more than 3750 lb.)	$3.77
Spikes, large	3.10c.
	Per Cent Off List
Track bolts, all sizes, per 100 count	60
Machine bolts, 100 count	65-5
Carriage bolts, 100 count	65-5
Nuts, all styles, 100 count	65-5
Large rivets, base per 100 lb.	$3.65
Wire, black, soft ann'l'd, base per 100 lb.	2.90c.
Wire, galv. soft, base per 100 lb.	3.25c.
Common wire nails, per keg	2.35c.
Cement coated nails, per keg.	2.35c.

On plates, structurals, bars, reinforcing bars, bands, hoops and blue annealed sheets, base applies to orders of 400 to 9999 lb.

*Delivered in Pittsburgh switching district.

CHICAGO

	Base per Lb.
Plates and structural shapes	3.30c.
Soft steel bars, rounds	3.10c.
Soft steel bars, squares and hexagons	3.25c.
Cold-fin. steel bars:	
Rounds and hexagons	3.65c.
Flats and squares	3.65c.
Hot-rolled strip	3.40c.
Hot-rolled annealed sheets (No. 24)	3.95c.
Galv. sheets (No. 24)	4.65c.
Spikes (keg lots)	3.70c.
Track bolts (keg lots)	4.70c.
Rivets, structural (keg lots)	3.80c.
Rivets, boiler (keg lots)	3.90c.
	Per Cent Off List
Machine bolts	*65
Carriage bolts	*65
Lag screws	*65
Hot-pressed nuts, sq. tap or blank	*65
Hot-pressed nuts, hex. tap or blank	*65
Hex. head cap screws	87½
Cut point set screws	75 and 10
Flat head bright wood screws	70
Spring cotters	55
Stove bolts in full packages	70
Rd. hd. tank rivets, 7/16 in. and smaller	57½
Wrought washers	$4.50 off list
Black ann'l'd wire per 100 lb.	$3.95
Com. wire nails, 50 kegs or more	2.40c.†
Cement c't'd nails, 50 kegs or more	2.40c.†

On plates, shapes, bars, hot-rolled strip and heavy hot-rolled sheets, the base applies on orders of 400 to 9999 lb. All prices are f.o.b. consumers' plants wihtin the Chicago switching district.

*These are quotations delivered to city trade for quantities of 100 lb. or more. For lots of less than 100 lb., the quotation is 65 per cent off. Discounts applying to country trade are 70 per cent off, f.o.b. Chicago, with full or partial freight allowed up to 50c. per 100 lb.

†Prices for city and suburbs only.

NEW YORK

	Base per Lb.
Plates, ¼ in. and heavier	3.50c.
Structural shapes	3.47c.
Soft steel bars, rounds	3.41c.
Iron bars, Swed. charcoal	6.75c. to 7.00c.
Cold-fin. shafting and screw stock:	
Rounds and hexagons	3.96c.
Flats and squares	3.96c.
Cold-rolled; strip, soft and quarter hard	3.36c.
Hoops	3.66c.
Bands	3.66c.
Hot-rolled sheets (No. 10)	3.15c. to 3.41c.
Hot-rolled ann'l'd sheets (No. 24*)	3.75c. to 3.99c.
Galvanized sheets (No. 24*)	4.10c. to 4.50c.
Long terne sheets (No. 24)	5.25c. to 5.35c.
Armco iron, galv. (No. 24†)	5.65c.
Toncan iron, galv. (No. 24†)	5.65c.
Galvannealed (No. 24†)	5.75c.
Armco iron, hot-rolled annealed (No. 24†)	5.10c.
Toncan iron, hot-rolled annealed (No. 24†)	5.10c.
Armco iron hot-rolled (No. 10†)	4.15c.
Toncan iron, hot-rolled (No. 10†)	4.15c.
Cold-rolled sheets (No. 20) less than 1000 lbs.	
Standard quality	4.65c.
Deep drawing	5.40c.
Stretcher leveled	5.40c.
SAE, 2300, hot-rolled	6.97c.
SAE, 3100, hot-rolled	5.37c.
SAE, 6100, hot-rolled, annealed	9.57c.
SAE, 2300, cold-rolled	8.03c.
SAE, 3100, cold-rolled, annealed	7.43c.
Floor plate ⅛ in. and heavier	5.30c.
Standard tool steel	11.25c.
Wire, black annealed (No. 9)	3.50c.
Wire, galv. (No. 9)	3.85c.
Tire steel, 1 x ½ in. and larger	3.75c.
Open-hearth spring steel	4.00c. to 10.00c.
Common wire nails, base per keg	$3.21
	Per Cent Off List
Machine bolts, square head and nut:	
All diameters	65 and 10
Carriage bolts, cut thread:	
All diameters	65 and 10

* No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

† 125 lb. and more.

ST. LOUIS

	Base per Lb.
Plates and struc. shapes	3.55c.
Bars, soft steel (rounds and flats)	3.35c.
Bars, soft steel (squares, hexagons, ovals, half ovals and half rounds)	3.50c.
Cold-fin. rounds, shafting, screw stock	3.90c.
Hot-rolled annealed sheets (No. 24)	4.20c.
Galv. sheets (No. 24)	4.90c.
Hot-rolled sheets (No. 10)	3.40c.
Black corrug. sheets (No. 24)	4.20c.
*Galv. corrug. sheets	4.90c.
Structural rivets	4.00c.
Boiler rivets	4.10c.
	Per Cent Off List
Tank rivets, 7/16 in. and smaller	55
Machine and carriage bolts, lag screws, fitting up bolts, bolt ends, plow bolts, hot-pressed nuts, square and hexagon, tapped or blank, semi-finished nuts; all quantities	70

*No. 26 and lighter take special prices.

PHILADELPHIA

	Base per Lb.
*Plates, ¼-in. and heavier	3.10c.
*Structural shapes	3.10c.
*Soft steel bars, small shapes, iron bars (except bands)	3.15c.
‡Reinforc. steel bars, sq. twisted and deformed	2.96c.
Cold-finished steel bars	3.91c.
*Steel hoops	3.55c.
*Steel bands, No. 12 and 3/16 in. incl.	3.30c.
Spring steel	5.00c.
†Hot-rolled anneal. sheets (No. 24)	3.75c.
†Galvanized sheets (No. 24)	4.50c.
*Hot-rolled annealed sheets (No. 10)	3.20c.
Diam. pat. floor plates, ¼ in.	5.05c.
Swedish iron bars	6.25c.

These prices are subject to quantity differential except on reinforcing and Swedish iron bars.

*Base prices subject to deduction on orders aggregating 4000 lb. or over.

†For 25 bundles or over.

‡For less than 2000 lb.

CLEVELAND

	Base per Lb.
Plates and struc. shapes	3.41c.
Soft steel bars	3.00c.
‡Reinforc. steel bars	2.10c.
†Cold-finished steel bars	3.65c.
Flat-rolled steel under ¼ in.	3.46c.
Cold-finished strip	†3.00c.
Hot-rolled annealed sheets (No. 24)	3.91c.
Galvanized sheets (No. 24)	4.61c.
Hot-rolled sheets (No. 10)	3.21c.
Hot-rolled 3/16 in. 24 to 48 in. wide sheets	3.46c.
*Black ann'l'd wire, per 100 lb.	$2.85
*No. 9 galv. wire, per 100 lb.	3.20
*Com. wire nails, base per keg	2.30

†Outside delivery 10c. less.

*For 5000 lb. or less.

‡Plus switching and cartage charges and quantity differentials up to 50c.

CINCINNATI

	Base per Lb.
Plates and struc. shapes	3.52c.
Bars, rounds, flats and angles	3.32c.
Other shapes	3.47c.
Rail steel reinforc. bars	3.25c.
Hoops and bands, 3/16 in. and lighter	3.57c.
Cold-finished bars	3.87c.
Hot-rolled annealed sheets (No. 24) 25 bundles or more.	4.62c.
Galv. sheets (No. 24) 500 lb. or less	4.47c.
Galvanized sheets (No. 24) over 3500 lb.	4.07c.
Hot-rolled sheets (No. 10)	3.32c.
Structural rivets	4.50c.
Small rivets	55 per cent off list
No. 9 ann'l'd wire, per 100 lb. (1000 lb. or over)	$2.88
Com. wire nails, base per keg:	
Any quantity less than carload.	3.04
Cement c't'd nails, base 100-lb keg	3.50
Chain, lin. per 100 lb.	8.35
	Net per 100 Ft.
Seamless steel boiler tubes, 2-in.	$20.37
4-in.	48.14
Lap-welded steel boiler tubes, 2-in.	19.38
4-in.	45.32

BUFFALO

	Base per Lb.
Plates	3.48c.
Struc. shapes	3.35c.
Soft steel bars	3.15c.
Reinforcing bars	2.60c.
Cold-fin. flats and sq.	3.70c.
Rounds and hex.	3.70c.
Cold-rolled strip steel	3.19c.
Hot-rolled annealed sheets (No. 24)	4.16c.
Heavy hot-rolled sheets (3/16 in., 24 to 48 in. wide)	3.53c.
Galv. sheet (No. 24)	4.80c.
Bands	3.53c.
Hoops	3.53c.
Heavy top-rolled sheets	3.28c.
Com. wire nails, base per keg.	$2.85
Black wire, base per 100 lb. (2500-lb. lots or under)	4.00
(Over 2500 lb.)	3.90

BOSTON

	Base per Lb.
Beams, channels, angles, tees, zees	3.54c.
H beams and shapes	3.54c.
Plates — Sheared, tank, and univ. mill, ¼ in. thick and heavier	3.56c.
Floor plates, diamond pattern	5.36c.
Bar and bar shapes (mild steel)	3.45c.
Bands 3/16 in. thick and No. 12 ga. incl.	3.65c. to 4.65c.
Half rounds, half ovals, ovals and bevels	4.70c.
Tire steel	4.70c.
Cold-rolled strip steel	3.245c.
Cold-finished rounds, squares and hexagons	3.90c.
Cold-finished flats	3.90c.
Blue annealed sheets, No. 10 ga.	3.65c.
One pass cold-rolled sheets No. 24 ga.	4.20c.
Galvanized steel sheets, No. 24 ga.	4.00c.
Lead coated sheets, No. 24 ga.	5.85c.

Price delivered by truck in metropolitan Boston, subject to quantity differentials.

DETROIT

	Base per Lb.
Soft steel bars	3.19c.
Structural shapes	3.52c.
Plates	3.52c.
Floor plates	5.27c.
Hot-rolled annealed sheets (No. 24)*	4.04c.
Hot-rolled sheets (No. 10)**	3.24c.
Galvanized sheets (No. 24)	4.82c.
Bands	3.49c.
Hoops	3.49c.
†Cold-finished bars	3.74c.
Cold-rolled strip	3.18c.
Hot-rolled alloy steel (S.A.E. 3100 Series)	5.44c.
Bolts and nuts, in cases,	70 and 10 per cent off list
Broken cases	70 per cent off

Prices delivered by truck in metropolitan Detroit, subject to quantity differentials covering shipment at one time.

* Base less 0.25c., 3500 lb. and over. Add 0.50c. per hundred lb. for broken bundles.

** Base less 0.25c., 1500 to 3749 lbs.; less 0.50c., 3750 to 7499 lb.; less 0.75c., 7500 lb. and over.

Galvanized and hot-rolled annealed may not be combined to obtain quantity deductions.

Country territory to be equalized on the Chicago plan.

MILWAUKEE

	Base per Lb.
Plates and structural shapes	3.41c.
Soft steel bars, rounds up to 8 in., flats and fillet angles	3.21c.
Soft steel bars, squares and hexagons	3.36c.
Hot-rolled strip	3.51c.
Hot-rolled sheets (No. 10)	3.26c.
Hot-rolled annealed sheets (No. 24)	4.06c.
Galvanized sheets (No. 20)	4.76c.
Cold-finished steel bars	3.76c.
Cold-rolled strip	3.33c.
Structural rivets (keg lots)	4.01c.
Boiler rivets, cone head (keg lots)	4.11c.
Track spikes (keg lots)	3.91c.
Track bolts (keg lots)	4.91c.
Black annealed wire	3.40c.
Com. wire nails	2.60c.
Cement coated nails	2.60c.

	Per Cent Off List
Machine bolts, carriage bolts and lag screws	70 to 75
Hot-pressed nuts, sq. and hex. tapped or blank (keg lots)	70

Prices given above are delivered Milwaukee.

On plates, shapes, bars, hot-rolled strip and heavy hot-rolled sheets, the base applies on orders of 400 to 9999 lb. On galvanized and No. 24 hot-rolled annealed sheets the prices given apply on orders of 400 to 1500 lb. On cold-finished bars the prices are for orders of 1000 lb. or more of a size.

ST. PAUL

	Base per Lb.
Mild steel bars, rounds	3.35c.
Structural shapes	3.55c.
Plates	3.55c.
Cold-finished bars	3.90c.
Bands and hoops	3.65c.
Hot-rolled annealed sheets, No. 24	4.20c.
Galvanized sheets, No. 24	4.90c.

On mild steel bars, shapes, plates and hoops and bands the base applies on 400 to 14,999 lb. On hot-rolled sheets, galvanized sheets and cold-rolled sheets base applies on 15,000 lb. and over. Base on cold-finished bars is 1000 lb. and over of a size.

BALTIMORE

	Base per Lb.
*Mild steel bars	3.10c.
**Reinforcing bars	2.85c.
*Structural shapes	3.10c.
†Plates	3.10c.
†Hot-rolled sheets, No. 10	3.20c.
‡Hot-rolled annealed sheets, No. 24	3.60c.
‡Galvanized sheets, No. 24	4.30c.
*Bands	3.30c.
*Hoops	3.55c.
§Cold-rolled rounds	3.73c.
§Cold-rolled squares, hex. and flats	3.73c.
Rivets	4.40c.
Bolts and nuts, per cent off list	60 and 10

*Quantity extras per size apply.

†Quantity extras per thickness apply. Hot-rolled quantity extras are: 2000 lb. and over, base: 1500 lb. to 1999 lb. add 15c. per 100 lb.; 1000 lb. to 1499 lb. add 40c.; 0 to 999 lb., add 50c.

‡25 bundles and over, base. For 1 to 9 bundles add 50c. per 100 lbs.; for 10 to 24 bundles add 25c.

§Base for 1000 lb. and over. For 500 to 999 lb. add 25c. per 100 lb.; for 300 to 499 lb. add $1.00; for 0 to 299 lb. add $1.75; for combined order under 100 lb. add $3.00.

**For orders 4000 lb. to 9999 lb. Add 15c. per 100 lb. for orders 2000 to 3999 lb.; add 65c. for orders less than 2000 lb.

CHATTANOOGA

	Base per Lb.
Mild steel bars	3.46c.
Iron bars	3.46c.
Reinforcing bars	3.46c.
Structural shapes	3.66c.
Plates	3.66c.
Hot-rolled sheets No. 10	3.46c.
Hot-rolled annealed sheets No. 24*	3.41c.
Galvanized sheets, No. 24*	3.96c.
Steel bands	3.71c.
Cold-finished bars	4.281c.

* Plus mill item extra.

MEMPHIS

	Base per Lb.
Mild steel bars	3.57c.
Shapes, bar size	3.57c.
Iron bars	3.57c.
Structural shapes	3.77c.
Plates	3.77c.
Hot-rolled sheets, No. 10	3.57c.
Hot-rolled annealed sheets, No. 24	4.37c.
Galvanized sheets, No. 24	5.07c.
Steel bands	3.82c.
Cold-drawn rounds	4.04c.
Cold-drawn flats, squares, hexagons	6.04c.
Structural rivets	4.25c.
Bolts and nuts, per cent off list	65
Small rivets, per cent off list.	50

NEW ORLEANS

	Base per Lb.
Mild steel bars	3.45c.
Reinforcing bars	3.50c.
Structural shapes	3.65c.
Plates	3.65c.
Hot-rolled sheets, No. 10	3.65c.
Hot-rolled annealed sheets, No. 24	4.35c.
Galvanized sheets, No. 24	4.95c.
Steel bands	4.05c.
Cold-finished steel bars	4.55c.
Structural rivets	4.25c.
Boiler rivets	4.25c.
Common wire nails, base per keg	$2.65
Bolts and nuts, per cent off list	70

PACIFIC COAST

	Base per Lb. San Francisco	Los Angeles	Seattle
Plates, tank and U. M.	3.25c.	3.60c.	3.65c.
Shapes, standard	3.25c.	3.60c.	3.65c.
Soft steel bars	3.25c.	3.60c.	3.80c.
Reinforcing bars, f.o.b. cars dock Pacific ports	2.45c.	2.45c.	2.45c.
Hot-rolled annealed sheets (No. 24)	4.20c.	4.15c.	4.50c.
Hot-rolled sheets (No. 10)	3.60c.	3.70c.	3.85c.
Galv. sheets (No. 24 and lighter)	5.00c.	4.40c.	5.10c.
Galv. sheets (No. 22 and heavier)	5.00c.	4.60c.	5.10c.
Cold finished steel			
Rounds	5.95c.	5.85c.	6.25c.
Squares and hexagons	7.20c.	7.10c.	7.50c.
Flats	7.75c.	7.60c.	8.50c.
Common wire nails—base per keg less carload	$2.90	$2.90	$2.90

All items subject to differentials for quantity.

REFRACTORIES PRICES

Fire Clay Brick

	Per 1000 f.o.b Works
High-heat duty, Pennsylvania, Maryland, Kentucky, Missouri and Illinois	$45.00
High-heat duty, New Jersey	50.00
High-heat duty, Ohio	40.00
Intermediate, Pennsylvania, Maryland, Kentucky, Missouri and Illinois	40.00
Intermediate, New Jersey	43.00
Intermediate, Ohio	35.00
Ground fire clay, per ton	7.00

Silica Brick

	Per 1000 f.o.b Works
Pennsylvania	$45.00
Chicago District	54.00
Birmingham	$48 to 50.00
Silica cement per net ton	8.00

Chrome Brick

	Per Net Ton
Standard f.o.b. Baltimore, Plymouth Meeting and Chester	$45.00
Chemically bonded f.o.b. Baltimore, Plymouth Meeting and Chester, Pa.	45.00

Magnesite Brick

	Per Net Ton
Standard f.o.b. Baltimore and Chester, Pa.	$65.00
Chemically bonded, f.o.b. Baltimore	55.00

Grain Magnesite

	Per Net Ton
Imported, f.o.b. Baltimore and Chester, Pa. (in sacks)	$45.00
Domestic, f.o.b. Baltimore and Chester, in sacks	40.00
Domestic, f.o.b. Chewelah, Wash.	22.00

RAW MATERIALS PRICES

PIG IRON

No. 2 Foundry

F.o.b. Everett, Mass.; Bethlehem, Birdsboro and Swedeland, Pa., and Sparrows Point, Md.	$20.50
Delivered Brooklyn	22.9289
Delivered Newark or Jersey City	21.9873
Delivered Philadelphia	21.3132
F.o.b. Neville Island, Sharpsville and Erie, Pa.; Buffalo; Youngstown, Cleveland, Toledo and Hamilton, Ohio; Detroit; Chicago and Granite City, Ill.	19.50
F.o.b. Jackson, Ohio	21.25
Delivered Cincinnati	19.82
F.o.b. Duluth	20.00
F.o.b. Provo, Utah	17.50
Delivered San Francisco, Los Angeles or Seattle	22.315
F.o.b. Birmingham*	15.58

* Delivered prices on southern iron for shipment to northern points are 38c. a ton below delivered prices from nearest northern basing point on iron with phosphorus content of .70 and over.

Malleable

Base prices on malleable iron are 50c. a ton above No. 2 foundry quotations at Everett, Eastern Pennsylvania furnaces, Erie and Buffalo. Elsewhere they are the same.

Basic

F.o.b. Everett, Mass.; Bethlehem, Birdsboro, Swedeland and Steelton, Pa., and Sparrows Point, Md.	$20.00
Delivered Boston Switching District	20.50
Delivered Newark or Jersey City	21.4873
Delivered Philadelphia	20.8132
F.o.b. Buffalo	18.50
F.o.b. Neville Island, Sharpsville and Erie, Pa.; Youngstown, Cleveland, Toledo and Hamilton, Ohio; Detroit; Chicago and Granite City, Ill.	19.00
Delivered Cincinnati	18.82
Delivered Canton, Ohio	20.3482
Delivered Mansfield, Ohio	20.8832
F.o.b. Jackson, Ohio	20.75
F.o.b. Provo, Utah	17.00
F.o.b. Birmingham	14.50

Bessemer

F.o.b. Everett, Mass.; Bethlehem, Birdsboro and Swedeland, Pa.	$21.50
Delivered Boston Switching District	22.00
Delivered Newark or Jersey City	22.9873
Delivered Philadelphia	22.3132
F.o.b. Buffalo and Erie, Pa., and Duluth	20.50
F.o.b. Neville Island and Sharpsville, Pa.; Youngstown, Cleveland, Toledo and Hamilton, Ohio; Detroit; Chicago and Birmingham	20.00
Delivered Cincinnati	21.0807
Delivered Canton, Ohio	21.3482
Delivered Mansfield, Ohio	21.8832

Low Phosphorus

Basing points: Birdsboro, Pa., Steelton, Pa., and Standish, N. Y.	$24.00

Gray Forge

Valley or Pittsburgh furnace	$19.00

Charcoal

Lake Superior furnace	$22.00
Delivered Chicago	25.2528

Canadian Pig Iron

Per Gross Ton

Delivered Toronto.

No. 1 fdy., sil. 2.25 to 2.75	$21.00
No. 2 fdy., sil. 1.75 to 2.75	20.50
Malleable	22.50

Delivered Montreal

No. 1 fdy., sil. 2.25 to 2.75	$22.50
No. 2 fdy., sil. 1.75 to 2.25	22.00
Malleable	22.50
Basic	22.00

FERROALLOYS

Ferromanganese

F.o.b. New York, Philadelphia, Baltimore, Mobile or New Orleans.

Per Gross Ton

Domestic, 80% (carload)	$75.00

Spiegeleisen

Per Gross Ton Furnace

Domestic, 19 to 21%	$26.00
50-ton lots 3-mo. shipment	24.00
F.o.b. New Orleans	26.00

Electric Ferrosilicon

Per Gross Ton Delivered

50% (carloads)	$69.50
50% (ton lots)	77.00
75% (carloads)	126.00
75% (ton lots)	130.00

Silvery Iron

Per Gross Ton

F.o.b. Jackson, Ohio, 6.00 to 6.50%	$22.75

For each additional 0.5% silicon up to 12%, 50c. a ton is added.

The lower all-rail delivered price from Jackson or Buffalo is quoted with freight allowed. Base prices at Buffalo are $1.25 a ton higher than at Jackson.

Manganese 2 to 3%, $1 a ton additional. For each unit of manganese over 3%, $1 a ton additional. Phosphorus 0.75% or over, $1 a ton additional.

Bessemer Ferrosilicon

F.o.b. Jackson, Ohio, Furnace

Per Gross Ton

10.00 to 10.50%	$27.75
10.51 to 11.00%	28.25
11.00 to 11.50%	28.75
11.51 to 12.00%	29.25
12.01 to 12.50%	29.75
12.51 to 13.00%	30.25
13.01 to 13.50%	30.75
13.51 to 14.00%	31.25
14.01 to 14.50%	31.75
14.51 to 15.00%	32.25
15.01 to 15.50%	32.75
15.51 to 16.00%	33.25
16.01 to 16.50%	33.75
16.51 to 17.00%	34.25

Manganese 2 to 3%, $1 a ton additional. For each unit of manganese over 3%, $1 a ton additional. Phosphorus 0.75% or over, $1 a ton additional.

Base prices at Buffalo are $1.25 a ton higher than at Jackson.

Other Ferroalloys

Ferrotungsten, per lb. contained W del., carloads	$1.30
Ferrotungsten, lots of 5000 lb.	1.35
Ferrotungsten, smaller lots	1.40
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr per lb. contained Cr delivered, in carloads, and contract	10.00c.
Ferrochromium, 2% carbon	16.50c. to 17.00c.
Ferrochrcinium, 1% carbon	17.50c. to 18.00c.
Ferrochromium, 0.10% carbon	19.50c. to 20.00c.
Ferrochromium, 0.06% carbon	20.00c. to 20.50c.
Ferrovanadium, del. per lb. contained V.	$2.70 to $2.90
Ferrocolumbium, per lb. contained columbium, f.o.b. Niagara Falls, N. Y.	$2.50
Ferrocarbontitanium, 15 to 18% Ti, 7 to 8% C, f.o.b. furnace carload and contract per net ton	$137.50
Ferrocarbontitanium, 17 to 20% Ti, 3 to 5% C, f.o.b. furnace, carload and contract, per net ton	142.50
Ferrophosphorus, electric, or blast furnace material, in carloads, f.o.b. Anniston, Ala., for 18%, with $3 unitage, freight equalized with Rockdale, Tenn., per gross ton	58.50
Ferrophosphorus, electric, 24%, in carlots, f.o.b. Anniston, Ala., per gross ton with $3 unitage, freight equalized with Nashville, Tenn.	75.00
Ferromolybdenum, per lb. Mo del.	95c.
Calcium molybdate, per lb. Mo del.	80c.
Silico spiegel, per ton, f.o.b. furnace, carloads	$38.00
Ton lots or less, per ton	45.50
Silico-manganese, gross ton, delivered.	
2.50% carbon grade	85.00
2% carbon grade	90.00
1% carbon grade	100.00

Note: Spot prices are $5 a ton higher except on 75 per cent ferrosilicon on which premium is $10 a ton.

ORES

Lake Superior Ores

Delivered Lower Lake Ports

Per Gross Ton

Old range, Bessemer, 51.50%	$4.80
Old range, non-Bessemer, 51.50%	4.65
Mesabi, Bessemer, 51.50%	4.65
Mesabi, non-Bessemer, 51.50%	4.50
High phosphorus, 51.50%	4.40

Foreign Ore

C.i.f. Philadelphia or Baltimore

Per Unit

Iron, low phos., copper free, 55 to 58% dry Spain or Algeria	10.25c.
Iron, low phos., Swedish, average, 68½% iron	10.25c.
Iron, basic or foundry, Swedish, aver. 65% iron	9.50c.
Iron, basic or foundry, Russian, aver. 65% iron	Nominal
Man., Caucasian, washed 52%	26c.
Man., African, Indian, 44-48%	25c.
Man., African, Indian, 49-51%	26c.
Man., Brazilian, 46 to 48½%	24c.

Per Net Ton Unit

Tungsten, Chinese, wolframite, duty paid, delivered, nominal	16.00
Tungsten, domestic, scheelite delivered, nominal	16.00

Per Gross Ton

Chrome, 45% Cr_2O_3, lump, c.i.f. Atlantic Seaboard (African)	$17.50
45 to 46% Cr_2O_3 (Turkish)	$16.50 to 17.00
48% Cr_2O_3 (African)	20.50
48% min. Cr_2O_3 (Turkish)	19.25
Chrome concentrate, 50% and over Cr_2O_3, c.i.f. Atlantic ports	22.00
52% Cr_2O_3 (Turkish)	21.75
48 to 49% Cr_2O_3 (Turkish)	19.25

FLUORSPAR

Per Net Ton

Domestic, washed gravel, 85-5, f.o.b. Kentucky and Illinois mines, all rail	$18.00 to $20.00
Domestic, barge and rail	19.00
No. 2 lump, 85-5, f.o.b. Kentucky and Illinois mines	20.00
Foreign, 85% calcium fluoride, not over 5% silicon, c.i.f. Atlantic ports, duty paid	21.50
Domestic No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silicon, f.o.b. Illinois and Kentucky mines	35.00

FUEL OIL

Per Gal.

F.o.b. Bayonne or Baltimore, No. 3 distillate	4.25c.
F.o.b. Bayonne or Baltimore, No. 4 industrial	3.75c.
Del'd Ch'go, No. 3 industrial	5.00c.
Del'd Ch'go, No. 5 industrial	3.77c.
Del'd Cleve'd, No. 3 distillate	5.87½c.
Del'd Cleve'd, No. 4 industrial	5.75c.
Del'd Cleve'd, No. 5 industrial	5.00c.

COKE AND COAL

Coke

Per Net Ton

Furnace, f.o.b. Connellsville, Prompt	$3.65 to $3.75
Foundry, f.o.b. Connellsville Prompt	4.00 to 5.75
Foundry, by-product, Chicago ovens	9.00
Foundry, by-product, del'd New England	11.50
Foundry, by-product, del'd Newark or Jersey City	9.65
Foundry, by-product, Philadelphia	9.38
Foundry, by-product, delivered Cleveland	9.75
Foundry, by-product, delivered Cincinnati	9.50
Foundry, Birmingham	6.50
Foundry, by-product, St. Louis, f.o.b. ovens	8.00
Foundry, from Birmingham, f.o.b. cars docks, Pacific ports	14.75

Coal

Per Net Ton

Mine run steam coal, f.o.b. W. Pa. mines	$1.50 to $1.75
Mine run coking coal, f.o.b. W. Pa.	1.75 to 1.90
Gas coal, ¾-in. f.o.b. Pa. mines	2.00 to 2.25
Mine run gas coal, f.o.b. Pa. mines	1.80 to 2.00
Steam slack, f.o.b. W. Pa. mines	1.00 to 1.25
Gas slack, f.o.b. W. Pa. mines	1.20 to 1.45

Fabricated Steel

(CONTINUED FROM PAGE 85)

Los Angeles, 1020 tons, butterfly sheds, Union Terminal, to Consolidated Steel Corp.

Los Angeles, 275 tons, Budlong Avenue school building, to Bethlehem Steel Co.

Oakland, Cal., 108 tons, addition for Chevrolet Motor Co., to Herrick Iron Works.

San Francisco, 220 tons, apartment house, to Herrick Iron Works.

Woodland, Cal., 500 tons, Spreckles Sugar Co. plant, to Herrick Iron Works.

Berkeley, Cal., 500 tons, addition to California Corrugated Culvert Co. plant, to Golden Gate Iron Works.

Green River, Wyo., 212 tons, State underpass and approaches, to an unnamed bidder.

Pasadena, Cal., 100 tons, Copelin warehouse for Department of Water and Power, to an unnamed bidder.

NEW STRUCTURAL STEEL PROJECTS

NORTH ATLANTIC STATES

Lewiston, Me., 425 tons, State bridge.

Clinton, Me., 150 tons, State bridge.

Milbridge, Me., 100 tons, State bridge.

Sullivan County, N. Y., 450 tons, State highway bridge, bids this week.

New York, 7000 tons, section 6th Avenue subway, bids.

New York, 5000 tons, section West Side Elevated Highway.

New York State, 600 tons, highway bridges.

New York, 4000 tons, hospital for Welfare Island.

West Point, N. Y., 200 tons, gymnasium addition, United States Military Academy.

Weehawken, N. J., 800 tons, plaza construction for the Midtown-Hudson tunnel, bids on contract 9, Sept. 8.

SOUTH AND SOUTHWEST

Chattanooga, Tenn., 500 tons, lock.

West Virginia, 850 tons, various State highway bridges.

CENTRAL STATES

East Chicago, Ind., 200 tons, asbestos cement mill for U. S. Gypsum Co.

State of Iowa, 410 tons, various State highway bridges.

State of Nebraska, 200 tons, various State highway bridges.

Ottawa County, Ohio, 600 tons, grade crossing elimination. Bids taken.

Elyria, Ohio, 200 tons, building for Elyria Foundry Co.

Chicago, 600 tons, Keeshin Terminal warehouse. Revised from 1000 tons.

Racine, Wis., 500 tons, Fourth Street single leaf bascule bridge, PWA grant applied for.

West Allis, Wis., 125 tons, laboratory for Allis-Chalmers Mfg. Co.

WESTERN STATES

Las Vegas, Nev., 132 tons, State underpass and approaches on Clark Avenue, bids Aug. 28.

San Francisco, 2000 to 3000 tons, approximately, terminal building on Trans-Bay bridge, bids expected to be opened during fall.

Los Angeles, 10,000 to 12,000 tons, Union station, bids Sept. 15.

Los Angeles, 600 to 700 tons, movable portion of Mount Palomar observatory, bids expected to be opened during fall.

Fife, Wash., 100 tons, State overcrossing, Sept. 1.

Ketchikan, Alaska, 115 tons, Federal post office, jail and courthouse, bids Sept. 3.

SHEET PILING

AWARDS

Marblehead, Ohio, 252 tons, bulkhead for the U. S. Coast Guard, approximately 126 tons to Jones & Laughlin Steel Corp., and 125 tons to Carnegie-Illinois Steel Corp., Pittsburgh.

LaGrange, Ill., 2044 tons, lock and dam, construction, Illinois River, to Carnegie-Illinois Steel Corp., Pittsburgh.

Columbus, Ohio, 125 tons, bulkhead for the Procurement Division of the Treasury Department, to Bethlehem Steel Co., Pittsburgh.

NEW PROJECTS

Tucumcari, N. M., 900 tons sheet piling, Conchas dam for U. S. Engineers, bids Sept. 10.

FABRICATED PLATES

AWARDS

Green Belt, Md., 250 tons, standpipe for Washington Suburban Sanitary District, to Pittsburgh-Des Moines Steel Co.

Revere, Mass., 360 tons, two tanks for Hartol Products Inc., to Chicago Bridge & Iron Co.

Fort Peck, Mont., 290 tons, intake tunnels for U. S. Engineers, to Midland Structural Steel Co.

Cincinnati, 1070 tons, five barges for the Ohio River Co., to the Modern Engineering

St. Louis, 2600 tons, 12 coal barges for the Dewey Portland Cement Co., to the St. Louis Ship Building & Steel Co.

NEW PROJECTS

Wauwatosa, Wis., 600 tons, municipal water tank, application for Federal aid authorized.

. . . Awards of 2229 tons and 5340 tons of new projects.

AWARDS

Saugus, Mass., 250 tons, grade crossing, Concrete Steel Co.

Wallingford, Vt., 150 tons, State road, to Northern Steel Co.

Cincinnati, 600 tons, post office, to Great Lakes Construction Co., Chicago.

Chicago, 130 tons, Dole Valve Co., to Calumet Steel Co.

State of Colorado, 144 tons, highway bridges in three counties, to various bidders.

Green River, Wyo., 120 tons, State underpass and approaches, to an unnamed bidder.

State of California, 157 tons, paving and bridges in two counties, to various bidders.

Los Angeles, 328 tons, material for Treasury Department, Specification No. 73,101, to Blue Diamond Corp.

Los Angeles, 100 tons, classroom building at Lomita school, to Soule Steel Co.

Los Angeles, 150 tons, classroom and auditorium building at Buchanan Street school, to Concrete Engineering Co.

Pierce County, Wash., 100 tons, bridge over Deadwood Creek for Bureau of Public Roads, to an unnamed bidder.

NEW REINFORCING BAR PROJECTS

New York, 250 tons, Department of Sanitation garage, William Kennedy Construction Co., low bidder.

New York, 420 tons, State procurement division, Treasury Department, low bidder, Capitol Steel Corp.

Camden, N. J., 933 tons, Federal housing project.

LaCross, Wis., 200 tons, sewage treating plant.

Libertyville, Ill., 100 tons, sewage treating plant.

Louisville, Ky., 436 tons, new warehouse for Colgate-Palmolive-Peet Co.

Chicago, 1700 tons, Lathrop housing project on Diversey Parkway. United States Fireproofing Co. low on the south sector and Henry Ericsson Co. low on the north sector.

Oak Park, Ill., 170 tons, Goldberg Store.

Las Vegas, Nev., 167 tons, State underpass and approaches on Clark Avenue, Aug. 28.

San Francisco, 158 tons, office and loft building at Sixth and Clementina Streets, bids opened.

Huntington Park, Cal., 100 tons, store building at Pacific and Zoe Streets, bids opened.

Los Angeles, 101 tons, material for Treasury Department, Schedule No. 13,631, List No. 1741, bids opened.

Los Angeles, 180 tons, Budlong Avenue school building, bids opened.

Los Angeles, 125 tons, Humphreys Avenue school building, bids opened.

Los Angeles, 170 tons, material for U. S. Engineers, Proposal No. 90, Bethlehem Steel Co. is low bidder.

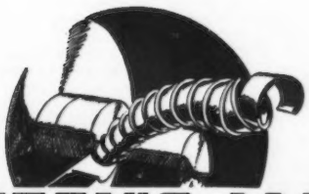
Los Angeles, 150 tons, two buildings at Los Feliz Boulevard school, bids Aug. 24.

Los Angeles, 125 tons, classroom building at West Vernon Avenue school, bids opened.

Los Angeles, 100 tons, Washington Boulevard school building, bids Aug. 26.

Fife, Wash., 117 tons, State overcrossing, bids Sept. 1.

Ketchikan, Alaska, 175 tons, Federal post office, jail and courthouse, bids Sept. 3.



THIS WEEK'S MACHINE . . .TOOL ACTIVITIES. . .

. . . Order index passes 1928 average.

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. . . .Eastern program buying is speeded up.

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. . . Drought effects are lessening.

By L. M. WAITE

THE extent to which recovery has occurred in the machine tool industry is indicated by the report of the National Machine Tool Builders' Association for July, which shows that the index of orders for that month, at 150, passed the 1928 average of 131 and was within five points of the 1929 average. The increase was due to a doubling of the volume of foreign business, which was 30 per cent of all orders. Domestic orders held around their June total at 104.4.

In this index the 1926 average monthly shipments are taken as base. Approximately half of the companies reporting to the association have bettered their 1926 business for four successive months.

Eastern Areas

Several tentative Eastern programs, equipment for which has been under investigation during the summer, are reported as possible of early placement in order that delayed deliveries through anticipated automotive ordering may be avoided. It is stated that a few special machines have received verbal approval. Several makers have received one order each for large turning and boring equipment as the basis for determination of the ultimate type for a sizable installation.

Chicago

Business is again turning upward and dealers are more or less agreed that the summer low, which was nothing to complain of, was reached about Aug. 1. Recently-delayed plant expansions are coming to the fore again with Allis-Chalmers Mfg. Co. active at Springfield, Ill., and buying on a general replacement program for the Milwaukee shop.

The effect of the drought is less noticeable in that manufacturers have reinstated programs at Fort Wayne, Ind., Milwaukee, and Rock Island, Ill.

An interesting development is that machine tool builders are out shopping for added and improved equipment; deliveries have been pushed back and there is urgent need for doing everything possible to find equipment. In some cases auxiliary parts are being contracted for in order to chop off a week or 10 days from quoted deliveries.

Pacific Coast

In spite of machinists' strike conditions in the Bay district, machine inquiries continue to be lively in coast areas. Proposals, however, are not being acted upon with proper consideration for delivery conditions; buyers seem to be figuring on improved, rather than more distant, shipments.

Detroit

The predominant machine tool factor is that of delayed deliveries. There is a large amount of last-minute change-over work which will engage machinery builders for the remainder of the month. Smaller shops are doing some buying, particularly lathes, shapers and surface grinding machines for tool-jobbing organizations. This activity has enabled some dealers to move display equipment from demonstration floors. Small tools of hand types are moving in volume. Millwright supplies are in active demand. Scarcity of skilled workers is resulting in a fairly high percentage of spoiled work. There is also a slowing up in some plants because of necessarily large numbers of learners.

Texas

There is little, if any, let up in activity involving the investigation of equipment needed to place shops in first-class operating condition. Well scattered orders are largely the result of sales effort over considerable periods. Investigations, however, are said to pertain to best-suited equipment rather than to any search for ways or means of avoiding investments in modern machine tools.

Upper New York State

Late July and early August have produced a satisfactory volume of machine tool business. The condition of individual machine buying continued to prevail and included a more-than-normal volume of grinder business. Many single machine inquiries are pending and these add to expectancy for sustained ordering during the remainder of the month.

New York

Inquiry among manufacturers reveals that not only was July the top distribution month for this area, but that, in a number of instances, it was a second best month for several of the makers who participated. Into August, summer sales continue to be surprisingly regular.

The present position of the British iron and steel industry is to be examined in the light of all the data now available and a report is to be made, with due regard to the national interest, on the general lines of its future development. Walter Runciman, president of the Board of Trade, requested the British Import Duties Advisory Committee to carry out the examination.

PLANT EXPANSION AND EQUIPMENT BUYING

. . . Olds Motor Works, Inc., Lansing, Mich., plans to spend over $5,000,000 on expansions and improvements in various operating divisions.

o o o

. . . St. Regis Kraft Co., New York, has let $1,000,000 contract for addition to mill in Washington and improvements to other units.

NORTH ATLANTIC

St Regis Kraft Co., 230 Park Avenue, New York, a subsidiary of St. Regis Paper Co., same address, has let general contract to Howard S. Wright & Co., Inc., 2210 Second Avenue, Seattle, for new addition to sulphate pulp mill on Middle Waterway, Tacoma, Wash., including modernization and improvements in present mill units. Cost about $1,000,000 with equipment. H. S. Ferguson & Co., 200 Fifth Avenue, New York, are consulting engineers. W. W. Griffith is general manager at mill.

Westinghouse Electric Supply Co., Inc., 150 Varick Street, New York, has arranged for long-time lease of four-story building, 36,000 sq. ft. floor space, to be erected at McCarter Highway and Green Street, Newark, N. J., for new storage and distributing branch. Present Newark branch at 152 Mulberry Street will be removed to new location when building is ready, with large increase in present facilities.

Signal Corps Procurement District, Army Base, 58th Street and First Avenue, Brooklyn, asks bids until Aug. 24 for quantity of 150-pair cable and one reel (Circular 24), 500 capacitors with mounting parts, etc. (Circular 25).

Viscose Co., 200 Madison Avenue, New York, manufacturer of viscose rayon products, will begin superstructure soon for one-story addition to branch mill at Nitro, W. Va. Cost over $150,000 with equipment.

Preferred Oil Co., Inc., 95 Frost Street, Brooklyn, has acquired tract of waterfront property at Bryant and Setauket Streets and Newtown Creek, about 125,000 sq. ft., as site for bulk oil storage and distributing plant for gasoline, fuel oil, lubricating oils, etc. Cost close to $200,000 with steel tanks and other equipment.

Optical Products Corp. of New York, 43 West 16th Street, New York, manufacturer of metal eye glass frames and specialties, has leased space in factory at 251 Spadina Avenue, Toronto, for new Canadian branch plant, to be operated in name of Optical Products Corp. of Canada, Ltd., a subsidiary interest.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Aug. 25 for 35 gas exhausting blowers and spare parts (Schedule 8585), quantity of castings and steam chests for turbine units (Schedule 8587), 15,000 jack-knives (Schedule 8606) for Brooklyn Navy Yard; quantity of conveyer chains, sprockets and spare parts (Schedule 8597) for Brooklyn and Philadelphia Navy Yards.

S. S. White Dental Mfg. Co., 211 South 12th Street, Philadelphia, manufacturer of dental instruments and equipment, flexible shaft equipment, etc., has let general contract to Austin Co., Euclid Avenue, Cleveland, for four-story addition, 102 x 170 ft., to plant at Princes Bay, Tottenville, S. I. Cost over $100,000 with equipment. Present factory in Northwood district, Philadelphia, will be removed to new unit and capacity increased.

Machinery Builders, Inc., 55 West 16th Street, New York, manufacturer of machinery and parts, has leased one-story building at 35-45 42nd Street, Long Island City, and will occupy for new plant.

Adolf Gobel, Inc., 24-26 Rock Street, Brooklyn, meat packer, has plans for two-story addition to plant at 319-33 Johnson Avenue. Cost over $75,000 with equipment. Alexander S. Hedman is company architect.

RCA Mfg. Co., Camden, N. J., manufacturer of radio equipment and parts, talking machines, etc., affiliated with Radio Corp. of America, 30 Rockefeller Plaza, New York, plans branch plant at LaSalle and Michigan Streets, Indianapolis, where five-story building, 160,000 sq. ft., will be improved and equipped for radio manufacture, including parts production and assembling.

Commanding Officer, Ordnance Department, Picatinny Arsenal, Dover, N. J., asks bids until Aug. 25 for quantity of die castings for practice bombs (Proposal 65); until Aug. 26 for one three-column hydraulic press (Proposal 60), one hand power toggle lever press (Proposal 62), two drill presses (Proposal 61); until Aug. 27 for 3000 swivel loops (Proposal 66); until Aug. 28 for 29,000 closing ammunition cups (Proposal 67).

Condenser Corp. of America, 257 Cornelison Avenue, Jersey City, manufacturer of condensers for automobile and radio service, small electrical parts, etc., has leased former plant of Spicer Mfg. Co., South Plainfield, N. J., comprising group of 24 buildings and power house, and will remodel and equip for new works. Company operates Cornell-Dubilier Corp., 4401 Bronx Boulevard, Bronx, New York, manufacturer of radio condensers, etc., which will remove to new location.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Aug. 25 for quantity of rough machined forgings for turret rollers (Schedule 8599), quantity of roller bearings for boat crane king post (Schedule 8562), quantity of miscellaneous steel forgings (Schedule 8592), steel forgings for king posts and rotating tubes (Schedule 8573), electric motors, magnetic starters, two-button stations and spare parts (Schedule 8583) for Philadelphia Navy Yard.

Commanding Officer, Ordnance Department, Frankford Arsenal, Philadelphia, asks bids until Aug. 26 for quantity of twist drills (Proposal 35).

BUFFALO DISTRICT

Du Pont Cellophane Co., Inc., River Road, Buffalo, manufacturer of processed transparent wrapping materials, has plans for group of five one-story additions. Cost over $80,000 with equipment. W. F. Lawless is company engineer in charge.

Pierce-Arrow Motor Corp., 1695 Elmwood Avenue, Buffalo, will expand line of production to include a new tourist-type automobile trailer, to be known as Travelodge, and will arrange plant facilities for manufacture in three sizes, in addition to regular passenger automobile production, as heretofore. New trailer units will be of steel skeleton frame, with aluminum side and end panels. Arthur J. Chanter is president.

New York Central Railroad, Central Terminal, Buffalo, plans rebuilding of portion of engine house and repair shop at Gardenville, near Cheektowaga, N. Y., recently destroyed by fire. Loss over $50,000 with equipment.

NEW ENGLAND

Springfield Mfg. Corp., Springfield, Mass., successor to Rolls-Royce of America, Inc., manufacturer of automobiles, has been acquired at a liquidation sale by Dallas E. Winslow, Inc., 1331 Holden Street, Detroit, operating automobile properties. Acquisition includes all property and assets, wth exception of factory, as well as Brewster & Co., Inc., manufacturer of special automobile bodies, affiliated with Springfield company. New owner will reorganize company, continuing manufacture of automobile parts and operation of Brewster body-manufacturing division.

Commanding Officer, Ordnance Department, Springfield Armory, Springfield, Mass., asks bids until Sept. 4 for one acid resistant exhauster (Circular 28).

Board of Education, Brunswick, Me., plans manual training department in two-story and basement senior high school on Spring Street, for which bids are being asked on general contract. Awards previously made for structure have been rescinded. Coombs & Harriman, 11 Lisbon Street, Lewiston, Me., are architects.

C. W. Haynes Laboratories, Inc., Circuit Avenue, West Springfield, Mass., manufacturer of lacquers and kindred products, has plans for one-story plant in East Springfield district, about 10,000 sq. ft. floor space. Cost close to $30,000 with equipment.

Brock & Stevens, Inc., 925 Housatonic Avenue, Bridgeport, Conn., has let general contract to Hewlett Co., 1275 Iranistan Avenue, for two-story and basement addition to baking plant, including improvements in present plant. Cost close to $60,000 with equipment.

Metropolitan Coal Co., 20 Exchange Place, Boston, plans installation of battery of steel tanks for fuel oil storage and distribution at yard on Broadway, Chelsea, Mass.

WASHINGTON DIST.

Chemical Warfare Service, Edgewood Arsenal, Md., asks bids until Aug. 25 for 22,500 cadmium-coated wire springs (Circular 14); until Aug. 27 for 22,832 copper diaphragm angle tubes (Circular 19).

James River Oil Co., Richmond, Va., plans new bulk oil storage and distribut-

ing plant on 5-acre tract of land recently acquired at South Norfolk, Va., comprising several buildings, pumping station and steel tank units for initial capacity of about 85,000 bbl. Cost close to $70,000 with equipment.

General Purchasing Officer, Panama Canal, Washington, asks bids until Aug. 24 for quantity of metal pipe forms, cold-drawn steel boiler tubes, close link coil chain, six manganese steel dredge dipper lips for dipper, 12 shanks for two-part dipper teeth, 100,000 ft. copper wire, 10,000 ft. tinned copper wire, 8000 ft. telephone cable, telephone cable terminals, safety type switches, time switches, primary cutouts and other equipment (Schedule 3172).

Hanover County Board of Education, Ashland, Va., asks bids until Aug. 25 for quantity of school equipment for school at Rockville, Va. L. P. Hartsook, Ashland, is architect.

Board of District Commissioners, District Building, Washington, asks bids until Aug. 28 for steel lockers for schools.

Bureau of Yards and Docks, Navy Department, Washington, asks bids until Sept. 23 for obstacle lights on two 214-ft. steel towers at naval radio station, St. Thomas, Virgin Islands (Specification 8295).

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Aug. 25 for one precision lathe (Schedule 8603), one woodworker's motor head lathe (Schedule 8619) for Portsmouth, Va., Navy Yard; 100 electric drills, six electric grinders, and 16 electric belt sanders (Schedule 8584) for Norfolk, Washington and San Pedro navy yards; quantity of truck-mounted gasoline engine-driven centrifugal pumps (Schedule 8609) for New York, Los Angeles, San Diego and Coco Solo yards; quantity of metal water tanks (Schedule 8608) for Boston, Los Angeles and Pearl Harbor, T. H., navy yards; until Sept. 1 for quantity of electric batteries (Schedule 8542), quantity of steel wire nails (Schedule 8590) for Eastern and Western navy yards.

SOUTH ATLANTIC

International Harvester Co., Motor Truck Division, 606 South Michigan Avenue, Chicago, will take bids soon on general contract for one-story addition to factory branch, service and distributing plant at 578 Whitehall Street, S. W., Atlanta, Ga. Cost close to $60,000 with equipment.

District Quartermaster, Fort Barrancas, Fla., asks bids until Sept. 8 for air lift pumping machinery for McHenry, Miss. (Proposal 4).

Seminole Flavor Co., 2414 Buena Vista Road, Winston-Salem, N. C., has taken over one-story building at 207 West Third Street, and will remodel and equip for mechanical-bottling works. Cost close to $30,000 with machinery. S. S. Zimmerman is head.

Pasco Packing Association, Dade City, Fla., plans new citrus packing plant, with initial capacity of about ten cars per day. Cost close to $80,000 with conveying, loading and other mechanical-handling equipment. L. C. Edwards is head.

SOUTH CENTRAL

Firestone Tire & Rubber Co., Main Street, Akron, Ohio, manufacturer of automobile tires and tubes, etc., has plans for two-story factory branch, storage and distributing plant, 135 x 150 ft., at 20th Street and Avenue C, Birmingham. Cost close to $100,000 with equipment.

Board of Education, Covington, Ky., plans manual training department in new three-story and basement junior high school. Cost about $350,000. B. T. Wisenall, 1210 Covington Highway, is architect.

Clarke-Washington County Power Association, Jackson, Ala., recently organized, plans transmission and distributing lines for rural electrification in parts of Clarke and Washington counties, totaling about 50 miles, with service facilities. Fund of $65,000 is being secured through Federal aid.

United States Engineer Office, Vicksburg, Miss., asks bids until Aug. 27 for two marine gasoline engines (Circular 35).

Board of Trustees, Meridian Separate School District, Meridian, Miss., asks bids until Aug. 26 for school equipment for two high schools and two elementary schools. Krouse & Braes, Meridian, are architects.

City Council, Tuscaloosa, Ala., has approved plans for new hangar, 120 x 150 ft., at municipal airport, with lean-to extension for machine and repair shop. Cost over $75,000 with equipment. Work will be carried out in connection with airport development to cost about $200,000, for which financing has been arranged through Federal aid.

Tennessee Valley Authority, Knoxville, Tenn., plans steel tower transmission line from Watts Bar Dam to Chickamauga Dam, for power supply in last noted area. Cost close to $500,000. Work scheduled to begin soon.

SOUTHWEST

Shell Petroleum Corp., Shell Building, St. Louis, plans extensions in main oil refining plant at Houston, Tex., including complete new operating unit comprising several buildings for gasoline production, with capacity for handling 16,000 bbl. crude oil per day. Steel tank storage division will be enlarged. Entire project will cost close to $1,500,000 with equipment. Arthur G. McKee & Co., 2422 Euclid Avenue, Cleveland, are consulting engineers.

Burge Fence & Iron Works, 1329 East 12th Street, Kansas City, manufacturer of iron fencing and other iron products, has plans for one-story addition, 50 x 56 ft., at 4211 Penn Street. Gilbert M. Spalding is company architect.

Clyde Collins Liquors, Inc., West Memphis, Ark., Clyde Collins, head, plans five-story distilling plant on tract of land acquired on South Crest Street, 100 x 200 ft., including storage and distributing unit. Cost close to $85,000 with equipment.

Department of Public Utilities, Wellington, Kan., E. W. Merrifield, superintendent, will take bids soon for extensions and improvements in municipal power plant, including installation of new turbo-generator unit and auxiliary equipment. Fund of $127,000 has been secured through Federal aid. Black & Veatch, 3706 Broadway, Kansas City, Mo., are consulting engineers.

Board of Education, Chanute, Kans., will take bids soon for new two-story and basement trade school, 105 x 115 ft., for which plans are being completed by D. B. Peterson, 721 Minnesota Avenue, Kansas City, Mo., architect. Cost $100,000 with equipment.

Corpus Christi Refining Co., Corpus Christi, Tex., has approved plans for expansion and improvements, including new refinery unit with capacity of 5000 bbl. per day, supplementing existing 3000-bbl. per day plant, new vapor recovery plant with rating of 1,500,000 cu. ft. per day residue gas, and new steel tank storage department with capacity of 330,000 bbl. Cost about $425,000 with equipment. Contract for portion of work has been let to Wyatt Metal & Boiler Works, Dallas, Tex. J. F. Whitehurst is general manager.

City Council, Georgetown, Tex., has been authorized at special election to arrange bond issue of $60,000 for extensions and improvements in municipal power plant, including installation of new Diesel engine-generator set. Burns & McDonnell Engineering Co., 107 West Linwood Boulevard, Kansas City, Mo., is consulting engineer.

WESTERN PA. DIST.

Pittsburgh Gear & Machine Co., 27th and Smallman Streets, Pittsburgh, manufacturer of cut gears and racks, machine specialties, etc., has let contract to Independent Steel Co., Oliver Building, for steel framing for one-story addition, 60 x 60 ft. Cost close to $40,000 with equipment. N. F. Arble, 704 Second Avenue, is architect.

Kingston Pocahontas Coal Co., Hemphill, W. Va., has let contract to Semet-Solvay Engineering Corp., 40 Rector Street, New York, for designing and supervising construction of new coal-washing and preparation plant at local Exeter mining properties, including wet-washing, dry-cleaning, sorting and other departments. Cost over $90,000 with machinery.

Westinghouse Electric & Mfg. Co., East Pittsburgh, has superstructure under way for new additions to branch plant at Mansfield, Ohio, including five-story structure, 300,000 sq. ft. floor space, and three additional stories to present building, 80 x 193 ft., for which general contract recently was let to Rust Engineering Co., Clark Building, Pittsburgh. Cost about $750,000 with equipment. Prack & Prack, Martin Building, Pittsburgh, are architects.

OHIO AND INDIANA

Standard Register Co., 107 Campbell Street, Dayton, Ohio, manufacturer of continuous roll printing equipment, manifolding registers, etc., has plans for one-story addition, 150 x 175 ft. Cost over $100,000 with equipment. Austin Co., 16112 Euclid Avenue, Cleveland, is architect and engineer.

Buckeye Bumpers, Inc., Springfield, Ohio, manufacturer of automobile bumpers, etc., Champlain Street, Toledo, Ohio, plans expansion and improvements for new divisions for production of hub caps, spring covers and kindred automobile accessories. Cost about $100,000; larger part to be expended for new equipment.

Reliable Pattern & Casting Co., 3530 Spring Grove Avenue, Cincinnati, has let general contract to Advance Construction Co., 2129 Freeman Avenue, for one-story addition, 40 x 82 ft., for storage and distribution. A. C. Kuball, 3419 McFarlan Road, is architect.

Columbia Electric Mfg. Co., 4519 Hamilton Avenue, Cleveland, manufacturer of electrical equipment, generating machinery, parts, etc., plans one-story addition, about 80 x 275 ft. Cost over $125,000 with equipment. Proposed to select architect to prepare detailed plans at early date.

Libbey-Owens-Ford Glass Co., Nicholas Building, Toledo, Ohio, manufacturer of sheet glass products, has let general contract to A. Bentley & Sons Co., 201 Belmont Street, for seven one-story additions to plant at Rossford, near Toledo, 80 x 400 ft., 150 x 233 ft., 60 x 260 ft., and 42 x 104 ft., for cutting, washing, packing, distribution and other service; and three smaller extensions for mechanical departments. Cost about $700,000 with equipment.

Contracting Officer, Material Division, Army Air Corps, Wright Field, Dayton, Ohio, asks bids until Aug. 25 for 100 oil tank assemblies (Circular 77); until Aug. 26 for quantity of twist drills (Circular 79); 14,500 ft. steel tape armored cable (Circular 75); until Aug. 27 for 50 plot assembly-automatics (Circular 37); quantity of propeller blades and propeller blade assemblies (Circular 59; quantity of center, drive pin and tinners' punches (Circular 80); until Aug. 28 for 3530 aircraft storage batteries (Circular 50); quantity of spring rudders, rear gunners' supports, clip rudders, hooks, rudder stop cable reinforcement brackets, etc. (Circular 61).

Briggs Indiana Corp., Evansville, Ind., manufacturer of steel automobile bodies, primarily for Chrysler Corp., has arranged for purchase of local plant of Graham-Paige Motors Corp., Detroit, occupied under lease for past year, for consideration of $600,000, and will develop for main body works. Company is affiliated with Briggs Mfg. Co., 11631 Mack Avenue, Detroit.

Board of Education, Anderson, Ind., is considering new steam power house for central heating service at senior and junior high schools. Cost about $40,000 with boilers and auxiliary equipment. E. F.

Miller, Anderson Bank Building, is architect.

MICHIGAN DISTRICT

Muskegon Motor Specialties Co., Muskegon, Mich., manufacturer of crankshafts, camshafts and kindred automobile products, has plans for one-story addition. Cost close to $45,000 with equipment. Benjamin McLaughlin, Grand Rapids, Mich., is architect.

Mueller Brass Co., Port Huron, Mich., manufacturer of brass and copper products, has asked bids on general contract for one-story addition, including improvements in present plant units. Cost over $65,000 with equipment. Smith, Hinchman & Grylls, Marquette Building, Detroit, are architects and engineers.

General Motors Truck Co., 3925 Vermont Street, Detroit, has let general contract to J. A. Utley, 6031 Mansur Street, for one-story addition to main plant at Pontiac, Mich., to be used primarily for body division. Cost close to $400,000 with equipment. Albert Kahn, Inc., New Center Building, Detroit, is architect and engineer.

Olds Motor Works, Inc., Lansing, Mich., plans expansion and improvements in different operating divisions to increase production from 55 to 85 cars per hr., including new plant units, modernization of existing buildings and machinery, installation of new tools, dies and other equipment. Entire project will cost over $5,000,000 and is scheduled for completion early in 1937. C. L. McCuen is president and general manager.

Star Tool & Die Works, 2532 24th Street, Detroit, has let general contract to W. J. Kaufmann Co., 10610 Shoemaker Street, for one-story addition. Cost about $40,000 with equipment.

MIDDLE WEST

General Machine & Tool Works, 313 West Chestnut Street, Chicago, manufacturer of machinery and parts, special tools, etc., has asked bids on general contract for second story addition to present one-story plant, 26 x 110 ft. Cost about $45,000 with equipment. Henry J. Schlacks, 840 North Michigan Avenue, is architect.

Sherwin-Williams Co., 115th Street and Cottage Grove Avenue, Chicago, manufacturer of paints, oils, varnishes, etc., has let general contract to Lundoff-Bicknell Co., 100 North La Salle Street, for one-story addition, 45 x 85 ft. Cost about $35,000 with equipment. Edward H. Nordlie, 4825 North California Avenue, is architect.

Town Council, Alta, Iowa, will take bids soon for extension and improvements in municipal electric power plant, including installation of new Diesel engine-generator unit and accessories. Fund of $75,000 has been arranged. Buell & Winter Engineering Co., Insurance Exchange Building, Sioux City, Iowa, is consulting engineer.

Farmers' Elevator & Mercantile Co., Kragnes, Minn., plans rebuilding of portion of grain elevator recently destroyed by fire. Loss close to $45,000, with elevating, conveying and other mechanical equipment. Max Goldberg is head.

Rapid City Packing Co., Rapid City, S. D., meat packer, has asked bids on general contract for two-story and basement addition, 45 x 60 ft., including improvements in present plant. Cost close to $50,000 with equipment. Smith, Brubaker & Egan, 30 North La Salle Street, Chicago, are architects and engineers.

Shelby County Rural Electric Co-Operative, Harlan, Iowa, has plans for transmission and distributing lines for rural electrification in parts of Shelby, Harrison and Cass counties, totaling about 250 miles, including service facilities. Fund of $267,500 has been secured through Federal aid.

Grob Brothers, 9700 West National Avenue, West Allis, Milwaukee, manufacturer of power filing machines and other metalworking tools, have decided to relocate plant and office in Grafton, Wis., instead of at Jefferson, Wis., and will start work at once on new machine shop, 48 x 128 ft. along Milwaukee Railroad right-of-way. Two additional units of similar size will be added later. Partners are Theodore and Benjamin Grob.

Signal Electric Mfg. Co., Menominee, Mich., manufacturer of electric fans and other appliances, has plans by Derrick Hubert, local architect, for plant addition, 59 x 79 ft., two stories and basement, estimated to cost $35,000 with equipment. John E. Henes is president.

Port Washington City Council, Port Washington, Wis., has commissioned Jerry Donohue Engineering Co., Sheboygan, Wis., to make plans for water filtration plant and intake into Lake Michigan, estimated to cost $400,000 to $500,000. Addie Lynch is city clerk.

Lake Superior District Power Co., Ashland, Wis., has applied to Wisconsin Public Service Commission for authority to build $200,000 dam and reservoir on west branch of Montreal near Montreal, Wis.

Burlington Brewing Co., Burlington, Wis., will invest $35,000 or more in machinery and other equipment for new bottling plant, 66 x 135 ft., part two-story, structure to cost $25,000. A. C. Ketler is president.

United States Gypsum Co., 300 West Adams Street, Chicago, manufacturer of building products, wallboard, etc., has asked bids on general contract for one-story addition to main plant at East Chicago, Ind., 80 x 420 ft. Cost over $125,000 with equipment. Company has let general contract to Campbell, Lowrie-Lautermilch Corp., 400 West Madison Street, Chicago, for one-story addition to factory branch, storage and distributing plant on North Kostner Street, Hermosa, Ill. Cost close to $40,000 with equipment.

PACIFIC COAST

General Brewing Corp., 2601 Newhall Avenue, San Francisco, has let general contract to Cahill Brothers, 206 Sansome Street, for additions to plant, including unit for storage and distribution, and one-story boiler house. Cost over $200,000 with equipment. Fred H. Meyer, Kohl Building, is architect.

Sunset Oil Co., Pacific Electric Building, Los Angeles, has filed plans for one-story addition to plant at 2211 East Washington Boulevard, to be equipped as an oil-blending unit, 50 x 100 ft. Cost close to $30,000 with machinery. Oliver G. Bowen is company engineer.

Board of Education, 1151 South Broadway, Los Angeles, has plans for one-story shop building, 76 x 150 ft., at Hollenbeck junior high school, South Soto Street, in conjunction with other buildings, and will ask bids on general contract at early date. Entire project will cost $480,000. A. F. Rosenheim, Chamber of Commerce Building, is architect; Ralph E. Phillips, Architects' Building, is mechanical engineer.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Aug. 25 for electric generating sets and accessories (Schedule 8601) for San Diego, Cal., and Norfolk navy yards; eight motor-driven flushing pumps and spare parts (Schedule 8585) for San Diego yard; 1000 lbs. corrosion-resisting steel welding electrodes (Schedule 8577) for Mare Island, Cal., Navy Yard; until Aug. 28 for 250 exhaust collector ring adapters (Schedule 900-9901); until Sept. 1 for one motor-driven watchmaker's lathe (Schedule 8588) for San Diego yard; quantity of electric cable (Schedule 8594) for Puget Sound, Wash., Navy Yard.

Milwaukee Sausage Co., 808 20th Street, Seattle, meat packer, has let general contract to Sound Construction Co., Northern Life Tower, for one-story processing and packing plant, 100 x 130 ft., at 2900 Fourth Street South. Cost over $75,000 with equipment. W. C. Jackson is company architect.

Three-G Distillery Corp., 3112 West San Fernando Boulevard, Burbank, Cal., has let contract to Western Iron & Metal Co., 1615 North Main Street, Los Angeles, for steel framing for new local distillery, comprising three main units, 50 x 112 ft., 45 x 50 ft., and smaller structure. First noted will be used for distillery division and second mentioned for fermentation department. Entire project will cost over $100,000. Bernard Lindberg, 8648 Olympic Boulevard, Beverly Hills, is in charge of construction. Arlos R. Sedgwick, 910 North Serrano Avenue, Los Angeles, is architect.

Western Sulphur Industries, Inc., 1427 East Fourth Street, Los Angeles, plans rebuilding portion of refining plant at Harbor City, Cal., recently destroyed by fire. Loss about $35,000 with equipment.

Bureau of Reclamation, Denver, asks bids until Aug. 20 for one 16-in. engine lathe, one 6-ft. radial drill, one milling machine, and one tool and cutter grinder (Specification 820-D); until Aug. 24, steel partitions, steel doors, steel stairs, aluminum door frames, etc., and miscellaneous architectural steel and aluminum work (Specification 821-D) for Boulder power plant; until Aug. 21, five motor-driven, vertical centrifugal pumping units with accessory equipment (Specification 819-D) for Owyhee project, Oregon-Idaho.

FOREIGN

Harland & Wolff, Ltd., Belfast, Ireland, operating a shipbuilding and repair plant, is interested in new company being organized with capital of £250,000 ($1,250,000) to build plant for manufacture of airplanes and parts on site adjoining East yard of company, Queen's Island. Plant will comprise one-story structures for parts production and assembling, with facilities for over 1500 workers. Cost close to $600,000 with machinery. Short Brothers, Ltd., Rochester, England, marine engineer and shipbuilder, is interested and will be identified with new company.

Lilpop, Rau i Loewenstein Co., Ltd., Warsaw, Poland, has secured concession from Ministry of Commerce, Government of Poland, for manufacture of automobiles and motor trucks, and has closed agreement with General Motors Corp., New York, through General Motors International A/S, Copenhagen, Denmark, foreign subsidiary, for production of five types of automobiles and trucks in Poland, including Chevrolet and Buick cars. Contract provides for complete manufacture of Chevrolet cars and assembling of all other models, including trucks, from imported parts. First noted company will establish large plant at Warsaw for purpose noted, with assembling units.

Metropolitan Water, Sewerage and Drainage Board, Sydney, New South Wales, Australia, asks bids until Sept. 22 for five large motor-driven pumping units and auxiliary equipment for Ryde pumping station, with alternate bids for five such units steam turbine-driven (Contract No. 1275); until Oct. 6 for steam boilers and auxiliary steam power plant equipment for same pumping station (Contract No. 1340).

Steel Company Files Reorganization Plan

A PLAN of reorganization under Section 77b of the National Bankruptcy Act has been filed in the Western District Federal Court of Pennsylvania by Follansbee Brothers Co., sheet manufacturer, Pittsburgh. The plan provides for the raising of more than $5,500,000 new capital through the sale of $4,500,000 new first mortgage convertible 5 per cent bonds and 70,000 shares of new common stock. The Toronto, Ohio, plant of the company is to be modernized at a cost of about $4,700,000. Five present directors of the company will continue to serve, and four new names will be added to the board as a result of the change in capitalization.